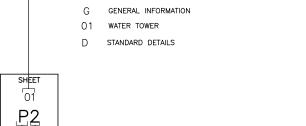
CONSTRUCTION DRAWINGS FOR LAKEVIEW RESERVOIR REPLACEMENT PROJECT

CITY OF MADISON, WISCONSIN



SHEET NUMBERING LEGEND

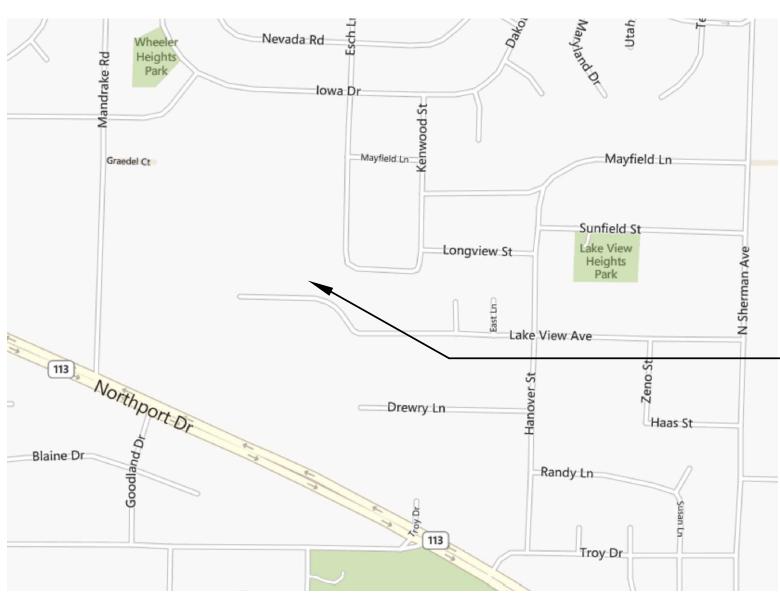


CONSECUTIVE SEQUENCE DRAWING NUMBER

STRUCTURE IDENTIFIER OR SHEET TYPE

- REMOVAL
- PROCESS
- MECHANICAL & PLUMBING ELECTRICAL





SHEET INDEX

- CERTIFIED SURVEY MAR
- SITE PLAN
 TREE REMOVAL & CRANE PAD PLAN
- GRADING PLAN
- EROSION CONTROL PLAN CONTRACTOR USE PLAN
- LANDSCAPE PLAN
- SITE DETAILS SITE DETAILS
- PROCESS PIPING DETAILS
 VALVE HOUSE PLAN AND SECTIONS
 STEEL TANK GENERAL NOTES
- STEEL TANK PLANS & TYPICAL ELEVATIONS
 STEEL TANK PROCESS PIPING SECTION
- STEEL TANK PROCESS PIPING PLAN
- STEEL TANK DETAILS
- PAINTING DETAILS
- CONCRETE TANK GENERAL NOTES
 CONCRETE TANK PLAN & TYPICAL ELEVATION
 CONCRETE TANK PROCESS PIPING SECTION
- CONCRETE TANK PROCESS PIPING PLAN
- CONCRETE TANK DETAILS
- ELECTRICAL SYMBOLS AND ABBREVIATIONS
 INSTRUMENTATION SYMBOLS AND ABBREVIATIONS
- PROPOSED FLECTRICAL WATER TOWER PLANS
- VALVE BUILDING ELECTRICAL PLAN ELECTRICAL KEYED NOTES
- SCADA PANEL DETAILS
- ELECTRICAL SCHEDULES AND ONE-LINE DIAGRAM ELECTRICAL CONTROL DIAGRAMS



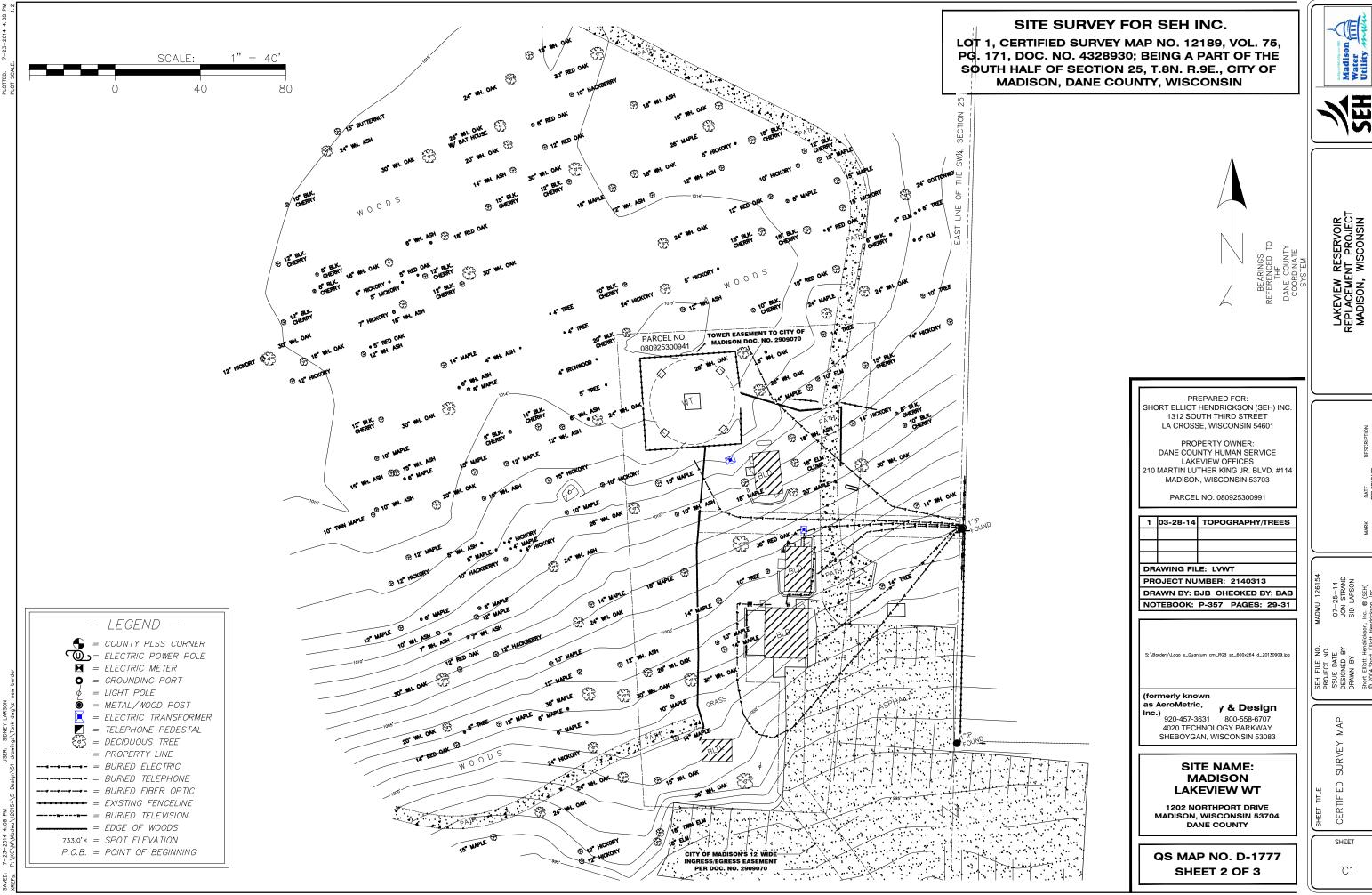
PROJECT LOCATION

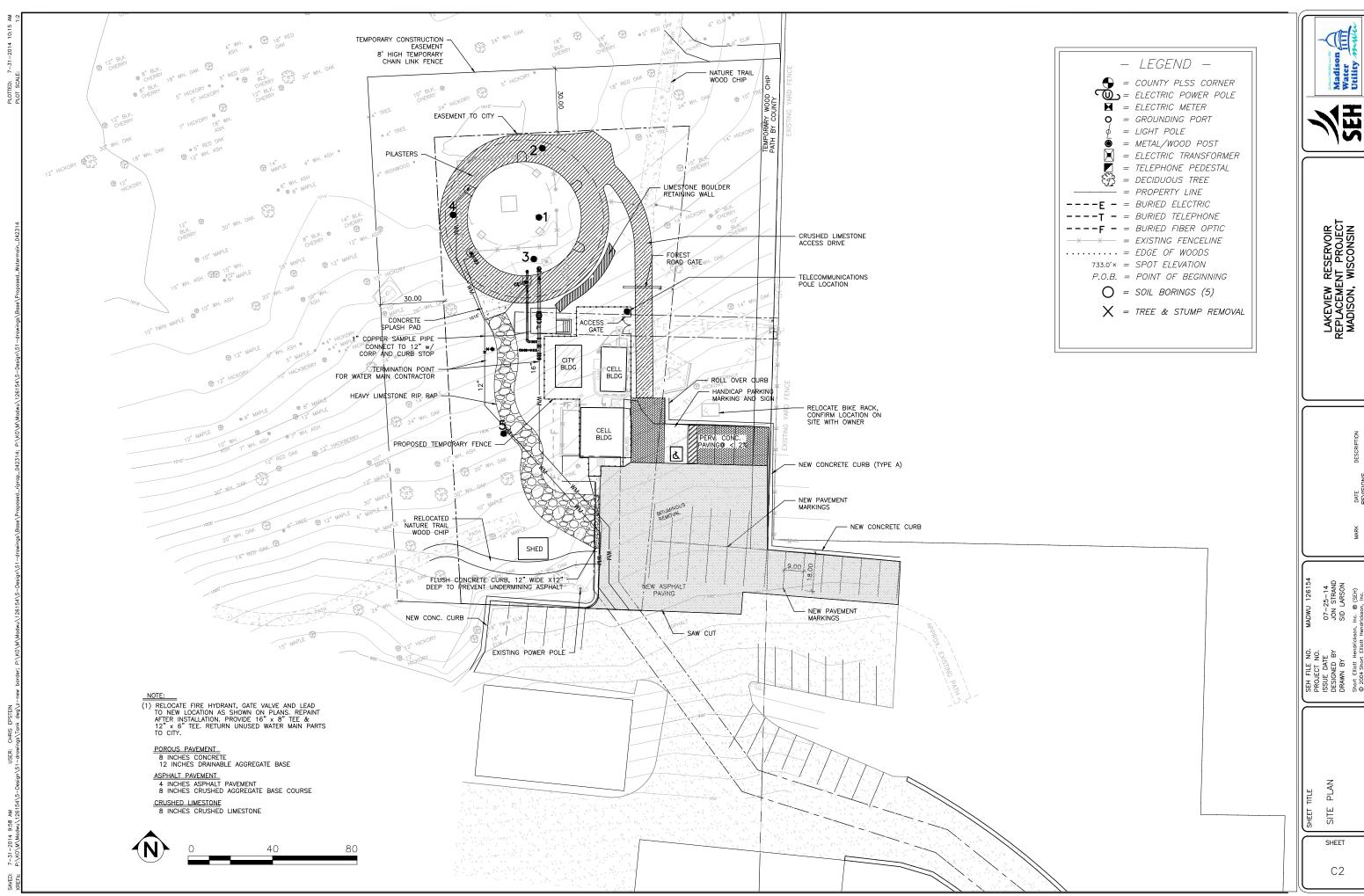


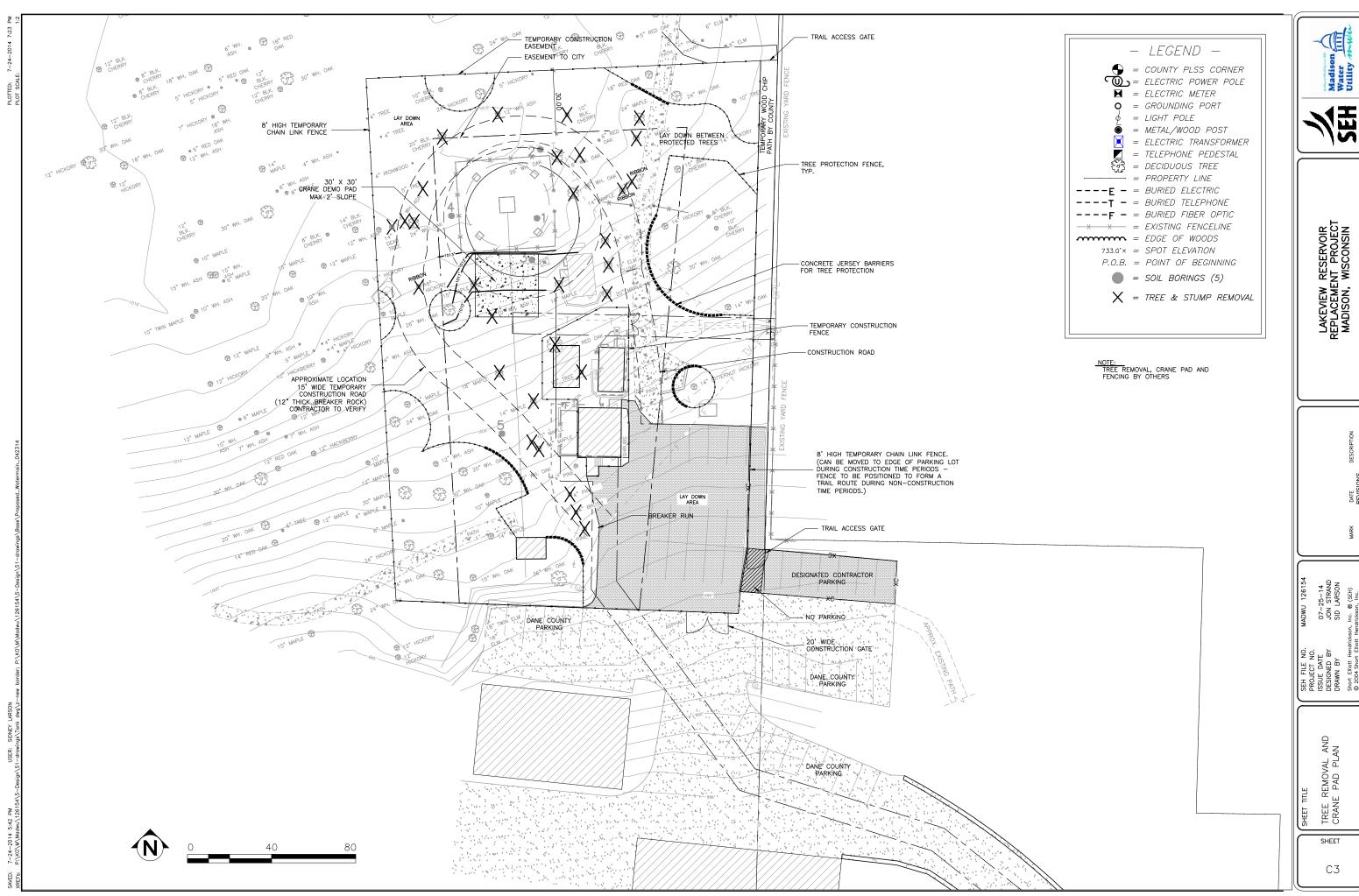
O7-JON SID

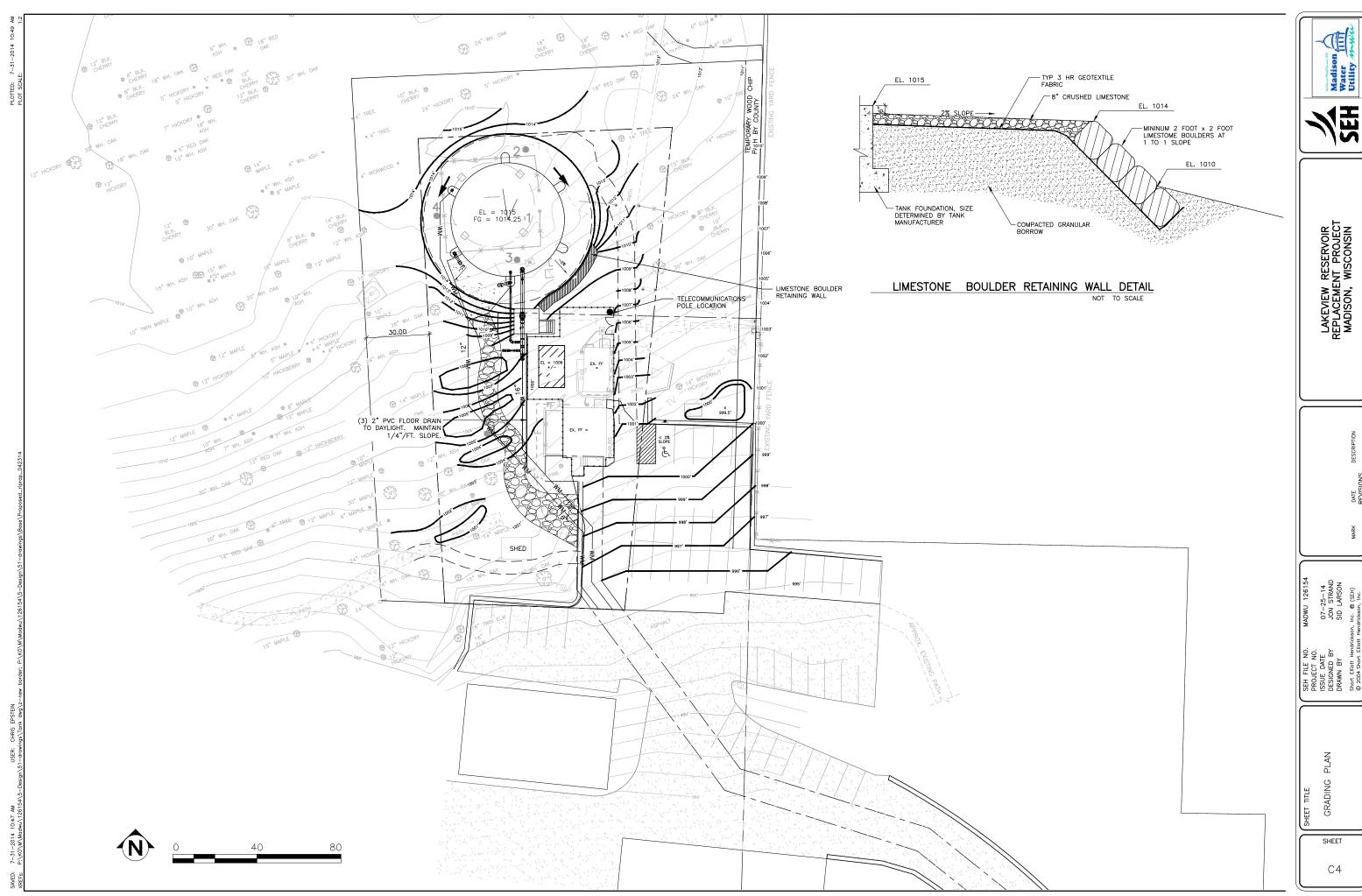
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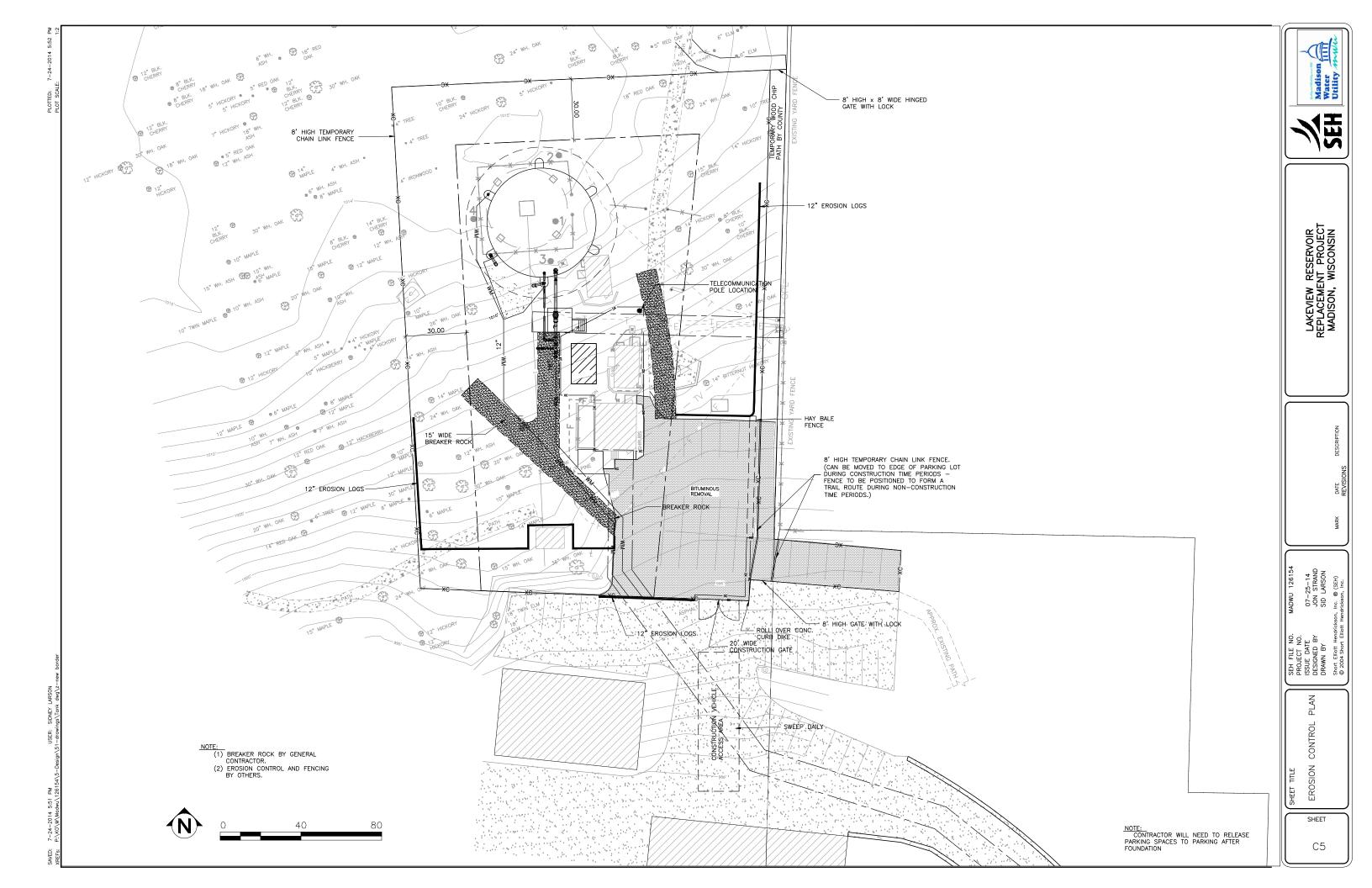
SHEET G1

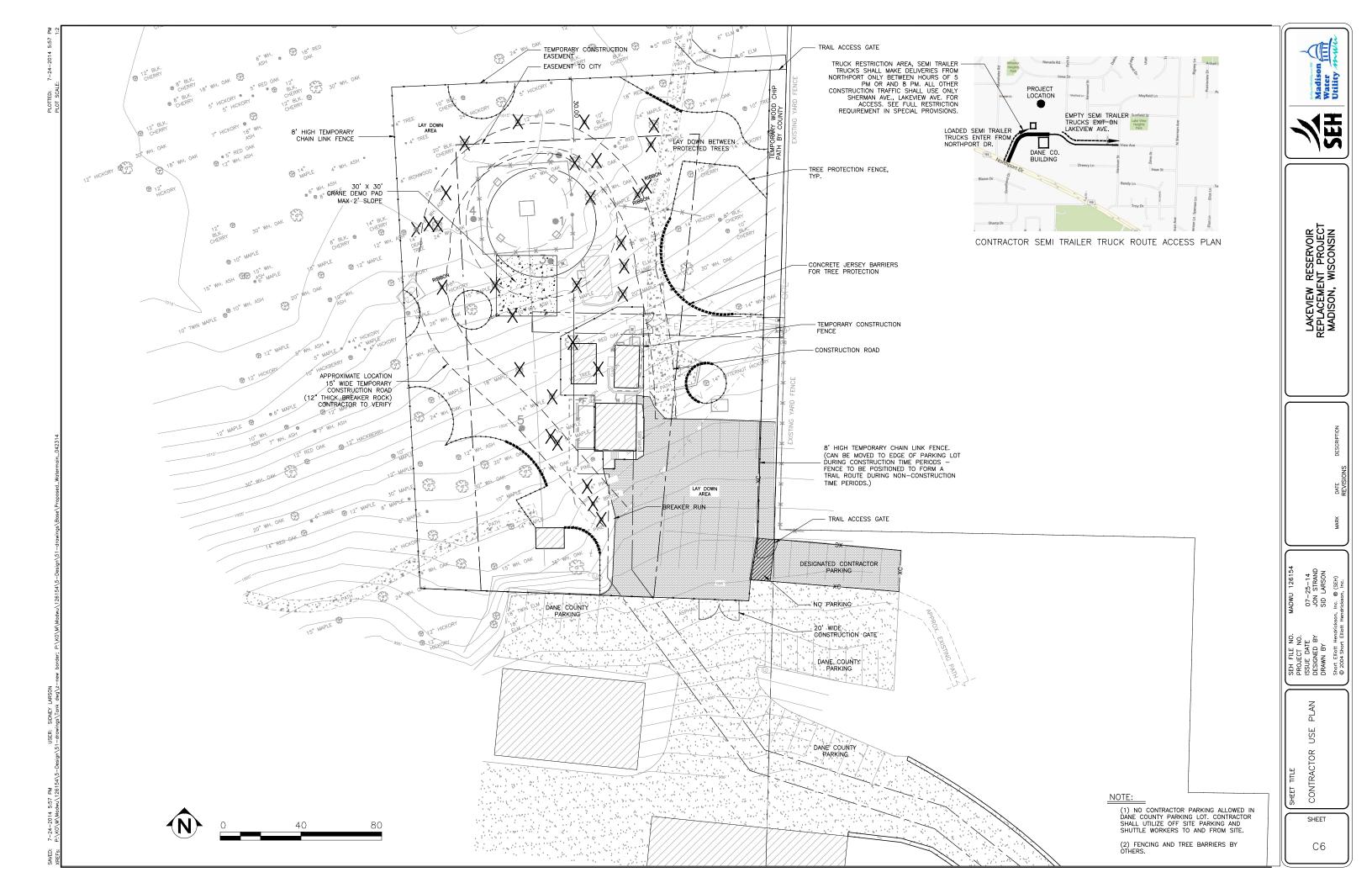


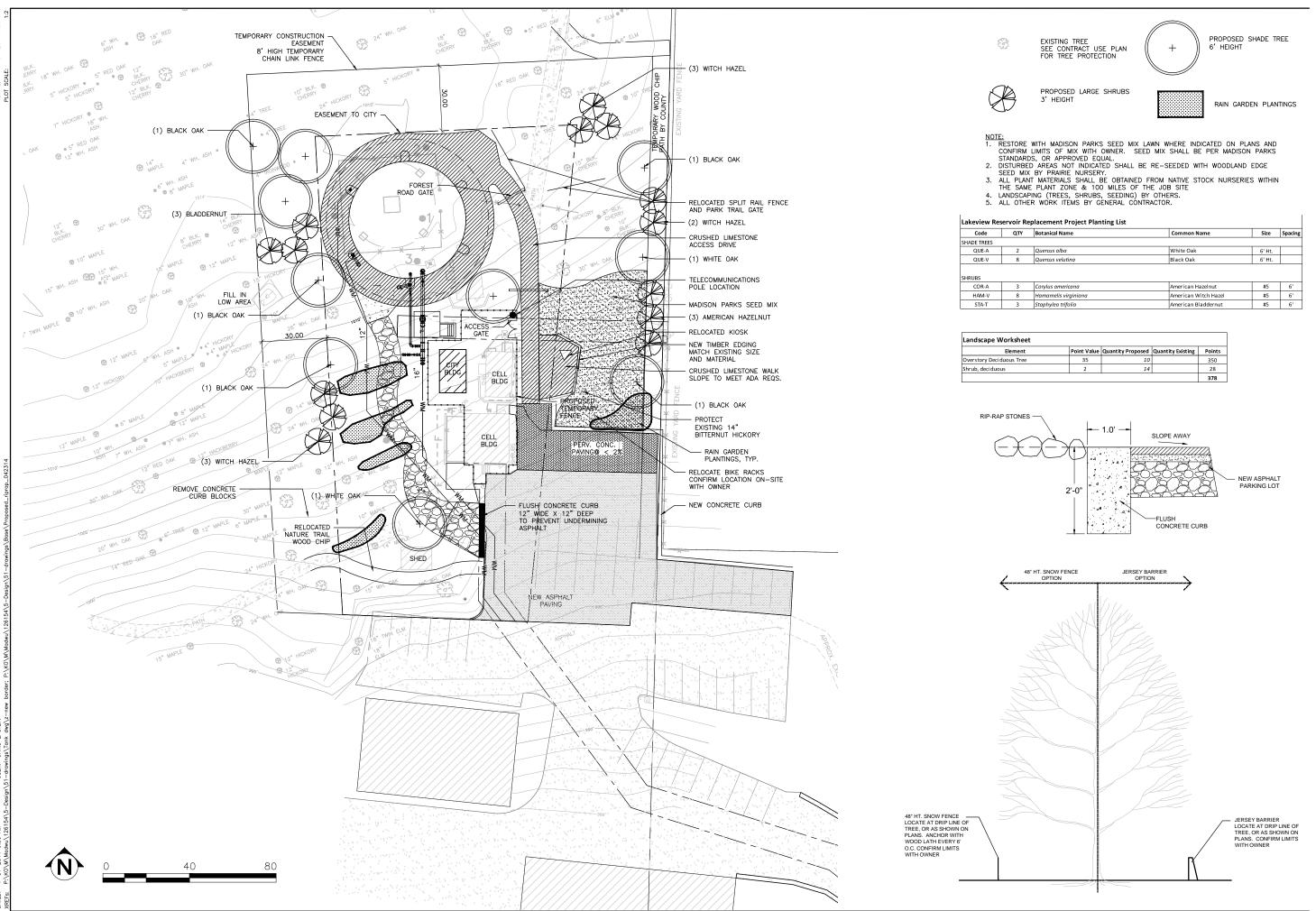












Madison Water Utility M

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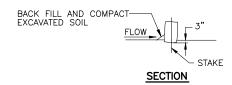
LAKEVIEW RESERVOIR REPLACEMENT PROJECT MADISON, WISCONSIN

PLAN SHEET

07-10 JON SID I

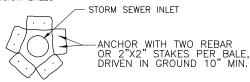
L1

SECTION THRU DITCH



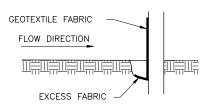
BALE DITCH CHECK

NOTE: CONTRACTOR SHALL REFER TO THE WDOT FACILITIES DEVELOPMENT MANUAL FOR SPECIFIC DETAILS RELATING TO EROSION BALES. S.D.D. "TYPICAL INSTALLATIONS OF EROSION BALES"

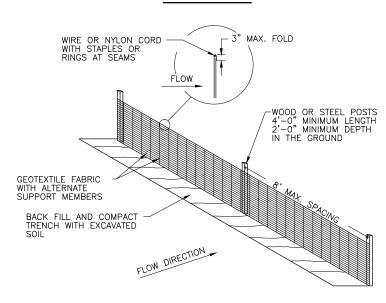


STORM SEWER INLET PROTECTION

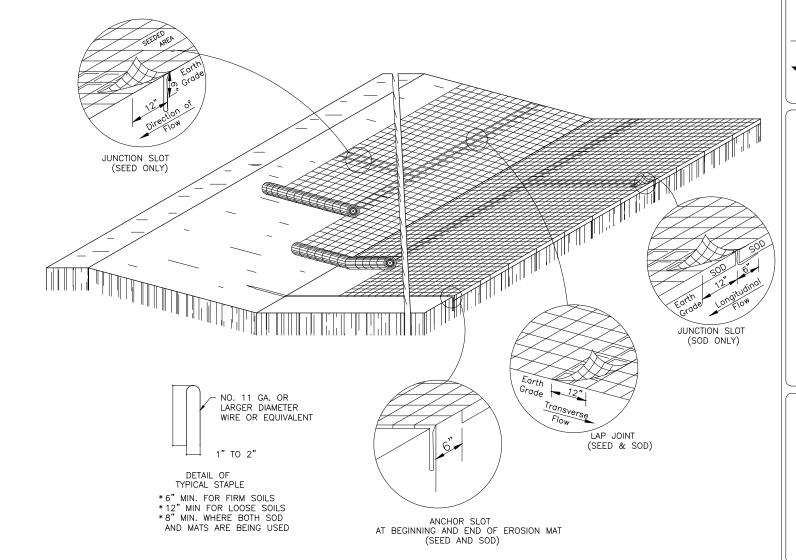
EROSION BALES



TRENCH DETAIL



SILT FENCE



EROSION CONTROL

GENERAL NOTES:

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL SPECIFICATIONS.

VARIATIONS IN THE DIMENSIONS OF MATERIALS SHOWN HEREON SHALL BE PERMITTED IF THEY PROVIDE EQUIVALENT PROTECTION AND MATERIAL STRENGTH AND IF PRIOR APPROVAL OF THE ENGINEER IS OBTAINED.

LAP JOINTS SHALL NOT BE PLACED IN THE BOTTOM OF V-SHAPED JUNCTION SLOTS ON ADJACENT STRIPS OF MATTING SHALL BE

STAGGERED A MINIMUM OF 4 FEET APART.

EDGES OF THE EROSION MAT SHALL BE IMPRESSED IN THE SOIL.

EROSION MAT SHALL BE MEASURED AND PAYED FOR IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

EROSION MAT OVER SOD:

- A: ONLY JUTE FABRIC WILL BE PERMITTED OVER SOD.

 B: ROAD STAKES FOR THE SOD MAY BE OMITTED BY THE ENGINEER IF THE EXISTING SLOPE AND SOIL CONDITIONS SO WARRANT.

 C: THE WIDTH OF EROSION MAT SHALL ALWAYS EQUAL THE SOD WIDTH.

 D: SOD STRIPS MAY BE PLACED EITHER LONGITUDINALLY OR TRANS—
- VERSELY TO THE FLOW LINE OF THE DITCH.

EROSION MAT OVER SEEDING:

JUNCTION OR ANCHOR SLOTS SHALL BE AT MINIMUM INTERVALS OF 100 FEET ON GRADES UP TO AND INCLUDING 3 PERCENT, AND 50 FEET ON GRADES EXCEEDING 3 PERCENT.

EROSION MAT OVER SEEDING

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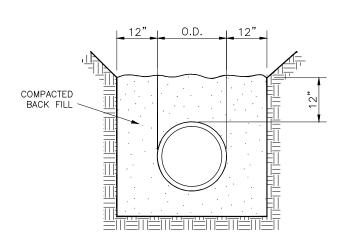
LAKEVIEW RESERVOIR REPLACEMENT PROJECT MADISON, WISCONSIN

SITE

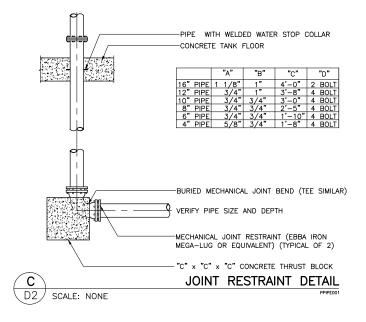
SHEET

D1

OVERFLOW SPLASH PAD DETAIL D2 / SCALE: NONE

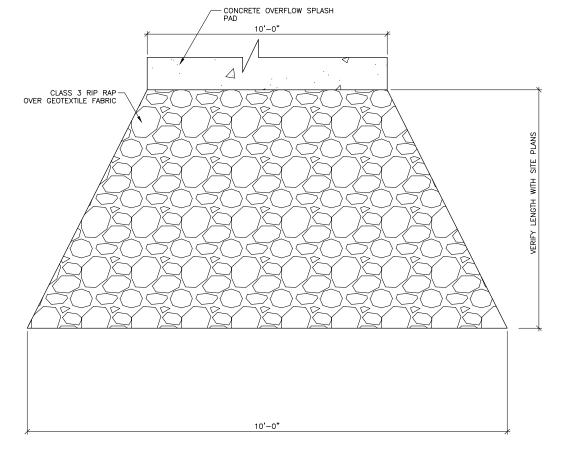


B TYPICAL PIPE EMBEDMENT D2 | SCALE: NONE

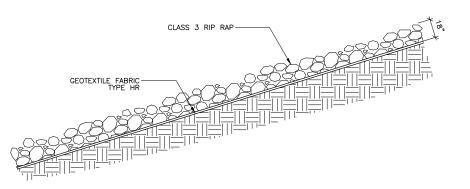


- MINIMUM (2) LAYERS OF 2" THICK RIGID EXTRUDED POLYSTYRENE BOARD INSULATION WITH STAGGERED JOINTS (UNLESS OTHERWISE 4' (MIN) 4' (MIN) - COMPACTED GRANULAR FILL BURIED PIPE

PIPE INSULATION DETAIL D D2 / SCALE: NONE



HEAVY RIP RAP DETAIL D2



F D2 HEAVY RIP RAP SECTION

海

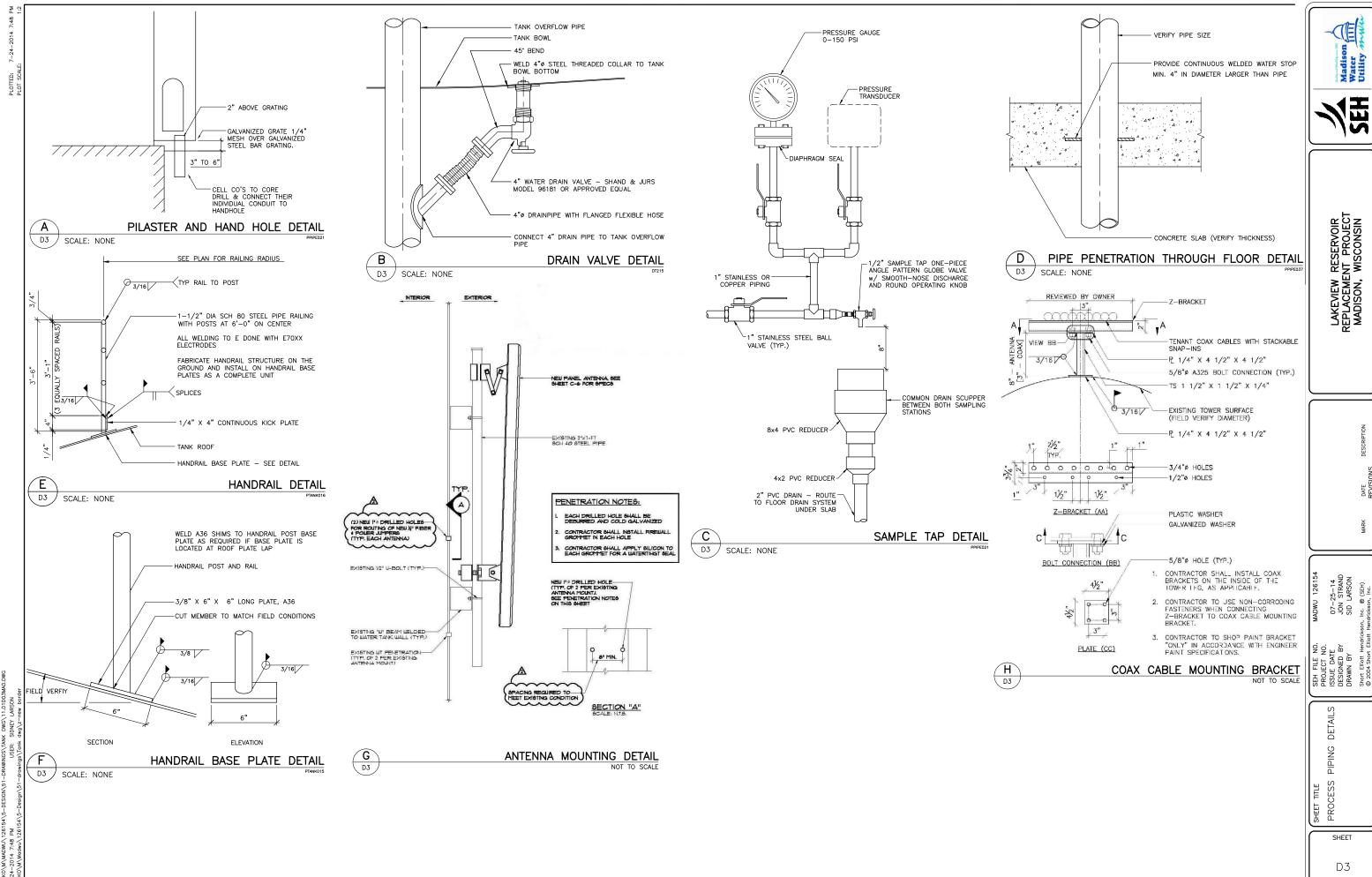
LAKEVIEW RESERVOIR
REPLACEMENT PROJECT
MADISON, WISCONSIN

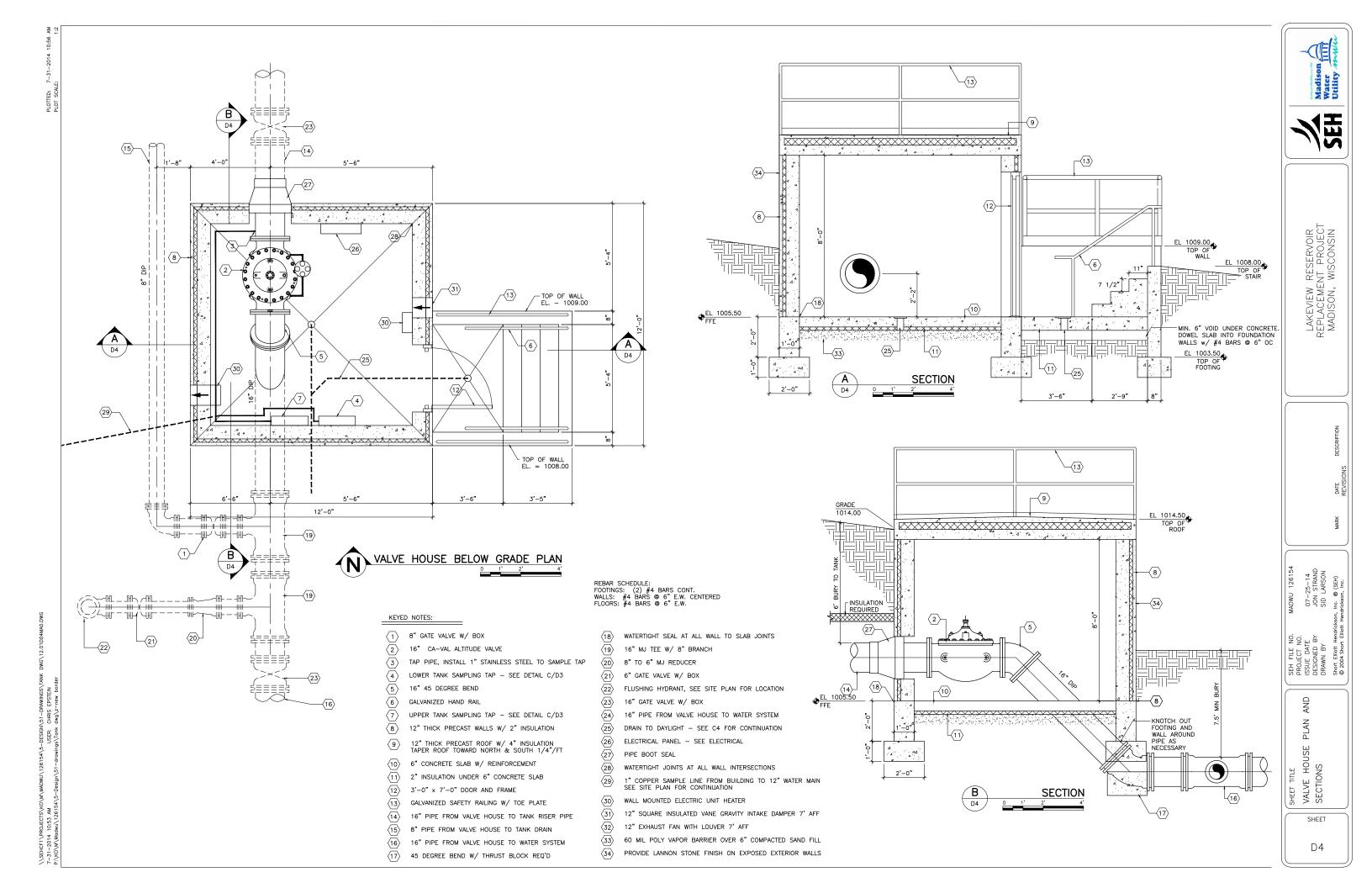
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DETAILS HEET TITLE SITE

SHEET

D2





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DWG\13.0	USER: SIDNEY LARSON	A Tonk du
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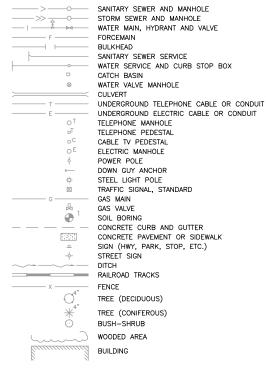
AB	ANCHOR BOLT	G	GATE	PSI	POUNDS PER SQUARE INCH
AF	ADAPTER FLANGE	GA	GAUGE	PT	POINT
ALT	ALTERNATE	GAL	GALLON	PV	PLUG VALVE
ALUM	ALUMINUM	GALV	GALVANIZED	PV & B	PLUG VALVE & BOX
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE	GND	GROUND	PVC	POLYVINYL CHLORINE
APPROX	APPROXIMATELY	GP	GUARD POST		
ARCH	ARCHITECT	GPD	GALLONS PER DAY	QTY	QUANTITY
ASSY	ASSEMBLY	GPM	GALLONS PER MINUTE		
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS	GRV	GROOVE	R	RADIUS
AUX	AUXILIARY	GV & B	GATE VALVE & BOX	RCP	REINFORCED CONCRETE PIPE
AVG	AVERAGE			RD	ROOF DRAIN
AWWA	AMERICAN WATERWORKS ASSOCIATION	HD	HEAVY DUTY	RECT	RECTANGULAR
ΑZ	AZIMUTH	НМ	HOLLOW METAL	RED	REDUCER
k	AND	HP	HORSEPOWER	REINF	REINFORCE (D)
D	AT	HPT	HIGH POINT	REQ	REQUIRE (D)
		HR	HOUR	REV	REVISION
BC .	BOLT CIRCLE	HSP	HIGH SERVICE PUMP	RP	RECLAIM PUMP
BIT	BITUMINOUS	HTR	HEATER	RPM	REVOLUTIONS PER MINUTE
BLDG	BUILDING	HWL	HIGH WATER LEVEL	RR	RAILROAD
3F	BLIND FLANGE	HVAC			
BLK	BLOCK	HYD	HYDRANT	SAN	SANITARY
вот	воттом		HEATING, VENTILATING, AND AIR CONDITIONING	SE	SOUTHEAST
FV	BUTTERFLY VALVE	ID	INSIDE DIAMETER	SEC	SECTION
FV & B	BUTTERFLY VALVE AND BOX	IN	INCHES	SCADA	SUPERVISORY CONTROL AND DATA ACQUISITION
		INV	INVERT	SCH	SCHEDULE
0	DEGREES CELSIUS	IPS	IRON PIPE SIZE	SIM	SIMILAR
;	CHECK			SLV	SLEEVE
ET	COMPOSITE ELEVATED TANK	JT	JOINT	SP	SLUDGE PUMP
FM	CUBIC FEET PER MINUTE			SPEC	SPECIFICATION
CHEM	CHEMICAL	KV	KNIFE VALVE	SS	STAINLESS STEEL
HL	CHLORINE			STD	STANDARD
	CAST IRON	LG	LONG	STRUCT	STRUCTURAL
IP .	CAST IRON PIPE	LF	LINEAL FEET/FOOT	SQ	SQUARE
)J	CONSTRUCTION JOINT	LL	LIQUID LEVEL	SYM	SYMMETRICAL
CKD	CHECKERED	LP	LOW POINT		
)L	CENTERLINE	LT	LEFT	TEMP	TEMPORARY
CMP	CORRUGATED METAL PIPE	LWL	LOW WATER LEVEL	TH	THICK
CMU	CONCRETE MASONRY UNIT			THD	THREAD
00	CLEAN-OUT	MAG	MAGNETIC	THRU	THROUGH
CONC	CONCRETE	MATL	MATERIAL	TOC	TOP OF CONCRETE
ONT	CONTINUOUS	MAX	MAXIMUM	TRTD	TREATED
C.T.	CERAMIC TILE	MECH	MECHANICAL	TYP	TYPICAL
CTE	CONNECT TO EXISTING	MFG	MANUFACTURING		
CTRL JT	CONTROL JOINT	MFR	MANUFACTURER	UON	UNLESS OTHERWISE NOTED
U	CUBIC	мн	MANHOLE		
CV .	CHECK VALVE	MIN	MINIMUM	VAC	VACUUM
_		MISC	MISCELLANEOUS	VCP	VITRIFIED CLAY PIPE
)P	DEEP	MJ	MECHANICAL JOINT	VERT	VERTICAL
)IA	DIAMETER			VFD	VARIABLE FREQUENCY DRIVE
IP	DUCTILE IRON PIPE	N	NORTH		WDE 44505
OWG	DRAWING	N/A	NOT APPLICABLE	W	WIDE/WEST
_	5107	NOM	NOMINAL	W/	WITH
	EAST	NEG	NEGATIVE	W/O	WITHOUT
EA .	EACH	NIC	NOT IN CONTRACT	WL	WATER MAIN
CC	ECCENTRIC ELEVATION	NC	NORMAL CLOSED	WM	WATER SUBSACE
IL ILEO	ELEVATION	NO	NORMAL OPEN	WS	WATER SURFACE
LEC	ELECTRICAL	No.	NUMBER	WTD	WEIGHT
QUIP	EQUIPMENT	NPS	NATIONAL PIPE SIZE	WTP	WATER TREATMENT PLANT
EMBED	EMBEDDED	NPT	NATIONAL PIPE THREAD	WWTP	WASTEWATER TREATMENT PLANT
:W	EACH WAY	NTS	NOT TO SCALE	~	FENCE
X	EXISTING	NW	NORTHWEST	X	FENCE
-	DECREES EAUDENIUST	NWL	NORMAL WATER LEVEL	VD.	VARR
	DEGREES FAHRENHEIT			YD	YARD
D DN	FLOOR DRAIN	0/C, OC	ON CENTER		
DN	FOUNDATION FINISHED FLOOR FLEVATION	OD	OUTSIDE DIAMETER		
FE 1	FINISHED FLOOR ELEVATION	OPNG	OPENING		
T.	FLOOR	OS&Y	OUTSIDE SCREW AND YOKE		
LG	FLANGE				
M	FORCEMAIN	PE	PLAIN END		
PS	FEET PER SECOND	PED	PEDESTRIAN		
RP	FIBERGLASS REINFORCED	P&ID	PIPING AND INSTRUMENTATION DIAGRAM		
T	FEET/FOOT	PL	PLATE		
TG	FITTING/FOOTING	PNT	PAINT		
UT	FUTURE	POS	POSITIVE		
		PP	POWER POLE		
		PPC	PRE STRESSED PRE CAST CONCRETE		
		DDV	DRESSIDE DELIEF VALVE		

PRESSURE RELIEF VALVE

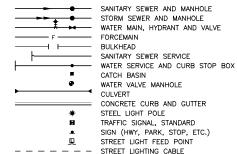
GENERAL DRAWINGS SITE LEGEND

STREET CENTERLINE SURVEY BASELINE - LIMITS OF CONSTRUCTION RIGHT OF WAY — — — — — — — — TEMPORARY EASEMENT PERMANENT EASEMENT

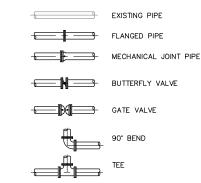
EXISTING



NEW CONSTRUCTION



GENERAL PIPING LEGEND



GENERAL NOTES

- INFORMATION REGARDING THE EXISTING CONDITIONS WAS OBTAINED FROM SURVEY DATA AND PRELIMINARY FIELD INVESTIGATIONS. ALL EXISTING AND PROPOSED CONDITIONS SHALL BE FIELD VERIFIED BY CONTRACTOR PRIOR TO ANY
- THE DRAWINGS ARE ESSENTIALLY TO SCALE UNLESS NOTED OTHERWISE. DRAWINGS SHALL NOT TAKE PRECEDENCE OVER
- ALL WORK SHALL BE COORDINATED WITH OTHER TRADES.
 THE CONTRACTOR SHALL CONSULT ALL DRAWINGS AND VARIOUS
 CONSTRUCTION TRADES TO ACQUAINT SELF WITH THE PROJECT. CONTRACTOR SHALL IMMEDIATELY NOTIFY ENGINEER OF ANY DISCREPANCIES NOTED BEFORE AND DURING CONSTRUCTION.
 THE ENGINEER RESERVES THE RIGHT TO MAKE REASONABLE
 MODIFICATIONS IN LAYOUT TO AVOID CONFLICT WITH THE WORK OF OTHER TRADES AND FOR THE PROPER EXECUTION OF THE WORK AT NO ADDITIONAL COST TO THE OWNER.
- ALL WORK SHALL BE CONDUCTED WITHIN THE LIMITS OF CONSTRUCTION. CONTRACTOR SHALL REPAIR AND RESTORE ANY PAVEMENT, UTILITIES, OR OTHER FEATURES OUTSIDE THE LIMITS OF CONSTRUCTION THAT ARE DAMAGED DUE TO THE CONTRACTOR'S ACTS OR NEGLIGENCE AT THE CONTRACTOR'S OWN EXPENSE.
- THE CONTRACTOR SHALL COMPLY WITH ALL CITY, COUNTY, AND STATE ROAD RESTRICTIONS FOR HAULING AND EQUIPMENT
- THE CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY FOR ANY ADDITIONAL COSTS WHICH MAY RESULT FROM UNAUTHORIZED DEVIATIONS FROM THE CONTRACT DOCUMENTS.
- CONTRACTOR SHALL PROTECT ALL EXISTING AND INSTALLED PIPING, EQUIPMENT, AND STRUCTURES DURING CONSTRUCTION NOT NOTED TO BE REMOVED. ALL DAMAGED ITEMS SHALL BE REPAIRED OR REPLACED WITH NO ADDITIONAL COST TO THE
- ALL APPLICABLE FEDERAL, STATE, AND LOCAL LAWS AND ORDINANCES SHALL BE ADHERED TO THROUGHOUT THE CONSTRUCTION PROJECT.
- STANDARD DETAILS ARE INTENDED TO SHOW GENERAL DESIGN CONCEPTS. REFER TO THE SPECIFIC STRUCTURE DRAWINGS FOR DIMENSIONS AND SIZES.
- 10. WHERE NOT SPECIFICALLY SHOWN ON THE DRAWINGS, IT IS INTENDED THAT ALL AREAS BE GRADED TO SLOPE AWAY FROM BUILDINGS AND STRUCTURES (EXCEPT DRAINAGE RECEIVING STRUCTURES) UNLESS OTHERWISE NOTED ON THE DRAWINGS OR SPECIFICATIONS.
- SIZE OF FITTINGS AND VALVES SHALL CORRESPOND TO THE SIZE OF ADJACENT PIPING. JOINTS AND FITTING MATERIAL SHALL BE AS SHOWN FOR ADJACENT PIPING.
- 12. PROVIDE PROPER PLUGS, CAPS, AND RESTRAINTS WHEN ANY PIPING IS TERMINATED.
- 13. THE EXACT LOCATION OF UNDERGROUND UTILITIES SUCH AS NATURAL GAS, TELEPHONE, FIBER OPTIC, ELECTRIC,
 CABLE TV, AND PIPE LINES ARE UNKNOWN. CONTRACTOR
 SHALL CONTACT DIGGERS HOTLINE, CALL AT (800) 242–8511 BEFORE COMMENCING ANY EXCAVATION.
- 14. THE 2014 EDITION OF THE WISCONSIN DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR HIGHWAY & STRUCTURE CONSTRUCTION" SHALL GOVERN EXCEPT AS MODIFIED BY THE SPECIFICATIONS FOR THIS PROJECT.
- 15. ALL SUBMERGED OR EARTH COVEREDANCHOR BOLTS, NUTS, FASTENERS, ETC., SHALL BE 304 STAINLESS STEEL UNLESS OTHERWISE NOTED.
- 16. ALUMINUM SURFACES IN CONTACT WITH CONCRETE SHALL RECEIVE TWO COATS OF BITUMASTIC OR ZINC CHROMATE
- 17. SOME ITEMS HAVE ROTATED INTO THE PLANE OF PROJECTION ON TYPICAL SECTIONS FOR CLARITY.
- THE PVC DRAIN LINE SHALL BE INSTALLED IN ACCORDANCE WITH ASTM STANDARD D2321.
- ALL STEEL SHALL COMPLY WITH "BUY AMERICAN" CLAUSE AS INDICATED WITHIN THE SPECIFICATIONS.



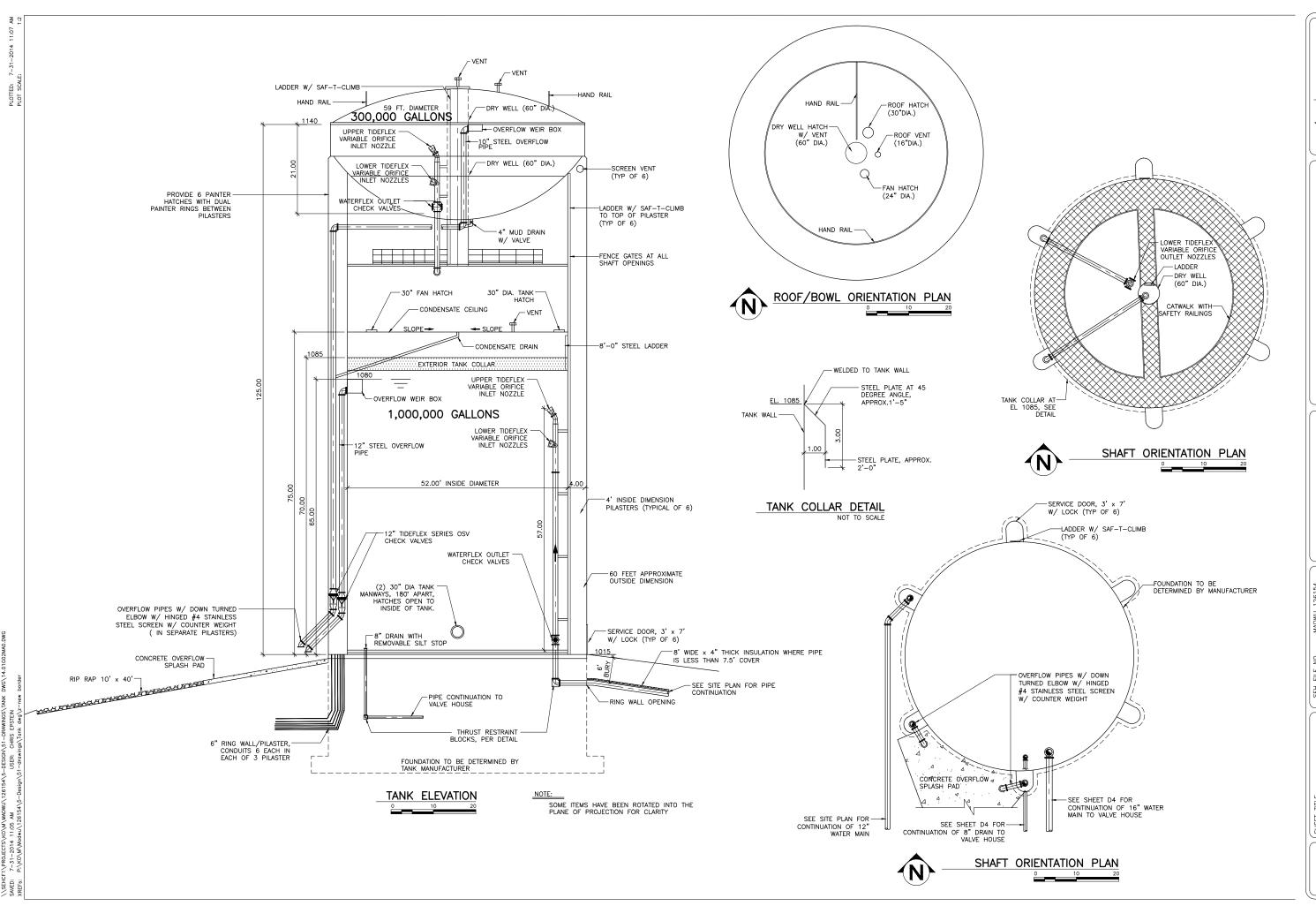


LAKEVIEW RESERVOIR REPLACEMENT PROJECT MADISON, WISCONSIN

DATE

STEEL V GENERA

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Madison Water Utility M

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LAKEVIEW RESERVOIR REPLACEMENT PROJECT MADISON, WISCONSIN

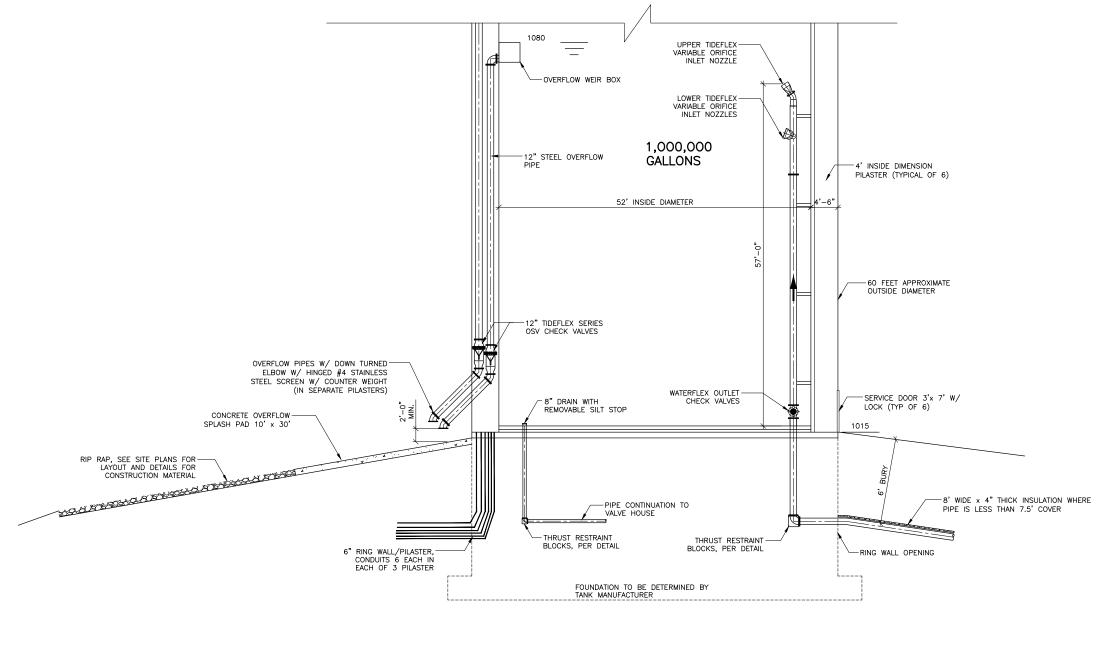
TANK ELEVATION LAN VIEW STEEL '

SHEET

TANK PROCESS SECTION

STEEL 7 PIPING

SHEET 03



PIPING ELEVATION

NOTE: SOME ITEMS HAVE BEEN ROTATED INTO THE PLANE OF PROJECTION FOR CLARITY.

16" STEEL RISER-

8" DRAIN WITH-REMOVABLE SILT STOP

SERVICE DOOR 3' x 7' W/ LOCK (TYP OF 6)

12" STEEL RISER W/ 4"-PIPE INSULATION AND ALUMINUM JACKET

OVERFLOW PIPE W/DOWN TURNED ELBOW W/
HINGED #4 STAINLESS
STEEL SCREEN W/
COUNTER WEIGHT

6

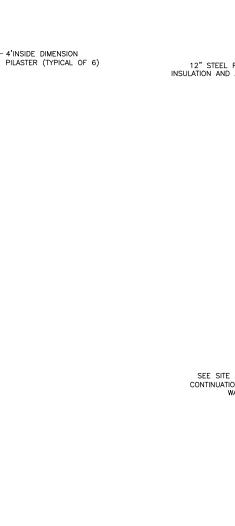
CONCRETE OVERFLOW-SPLASH PAD

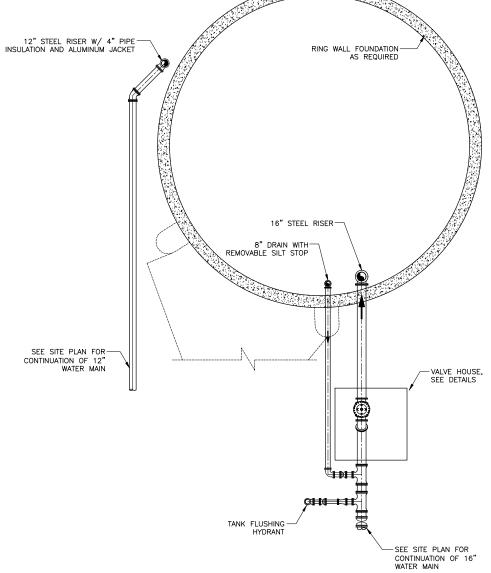
-LADDER W/ SAFETY CLIMB

STEEL TANK WALL-

OVERFLOW PIPE W/
DOWN TURNED ELBOW W/
HINGED #4 STAINLESS
STEEL SCREEN W/
COUNTER WEIGHT

—TANK FLUSHING HYDRANT







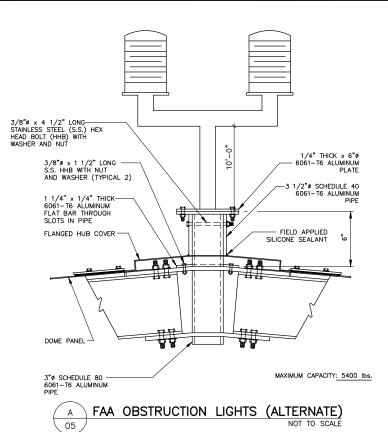
TANK PLAN

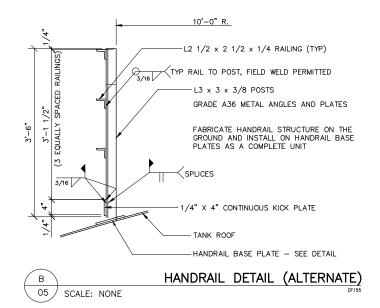
07-25-14 JON STRAND SID LARSON Inc. ® (SEH)

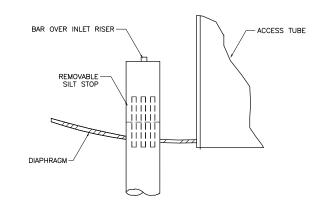
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LAKEVIEW RESERVOIR REPLACEMENT PROJECT MADISON, WISCONSIN

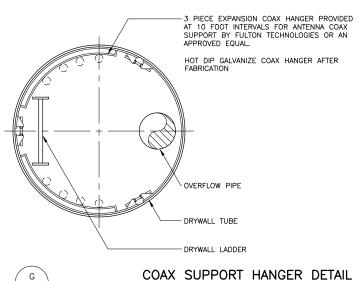
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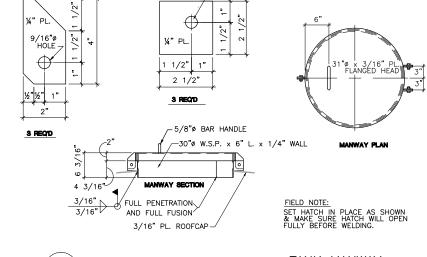




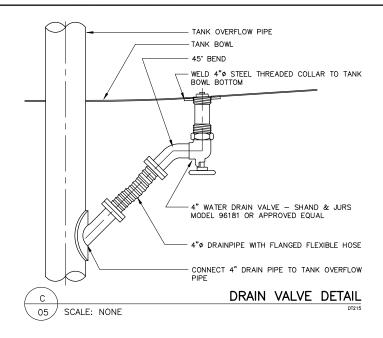


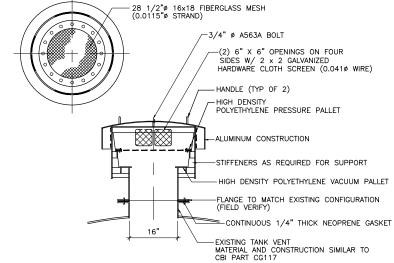


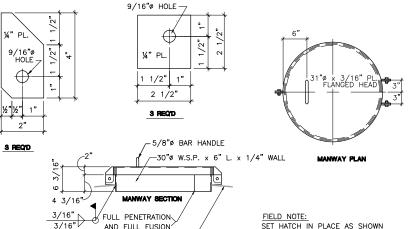




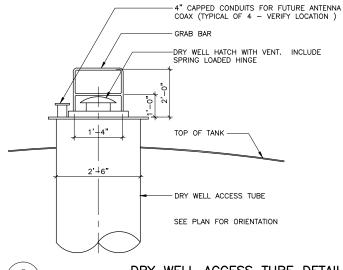
(E)







TANK MANWAY 05 NOT TO SCALE



DRY WELL ACCESS TUBE DETAIL SCALE: NONE

TANK VENT DETAIL

07–20 JON SID 1

DETAILS STEEL

SHEET

05

LAKEVIEW RESERVOIR
REPLACEMENT PROJECT
MADISON, WISCONSIN

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SCALE: NONE



LAKEVIEW RESERVOIR REPLACEMENT PROJECT MADISON, WISCONSIN

07-25-14 JON STRAND SID LARSON Inc. ® (SEH) drickson, Inc.

SHEET TITLE
PAINTING DETAILS

SHEET

- 1. THE WATER TANK SUPPORT PEDESTAL IS DESIGNED AND SHALL BE CONSTRUCTED IN ACCORDANCE WITH THESE GENERAL NOTES AND THE APPLICABLE PORTIONS OF THE FOLLOWING CODES AND STANDARDS:
- 1.1 THE 2009 INTERNATIONAL BUILDING CODE (IBC) AS PUBLISHED BY THE INTERNATIONAL CODE COUNCIL (ICC).
- 1.2 ANSI/ASCE 7-05 (2005) MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES PUBLISHED BY THE AMERICAN SOCIETY OF CIVIL
- 1.3 AMERICAN CONCRETE INSTITUTE (ACI) BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE (ACI 318-05).
- 1.4 AMERICAN CONCRETE INSTITUTE (ACI) GUIDE FOR THE ANALYSIS, DESIGN AND CONSTRUCTION OF CONCRETE-PEDESTAL WATER TOWERS (ACI 371R-08), AS APPLICABLE.
- 1.5 AMERICAN CONCRETE INSTITUTE (ACI) GUIDE TO FORM WORK FOR CONCRETE (ACI 347R-04).
- 1.6 AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) MANUAL OF STEEL CONSTRUCTION, ALLOWABLE STRESS DESIGN (NINTH EDITION) AND SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS DATED
- 1.7 ANSI/AWS D1.1-2008, 2008 STRUCTURAL WELDING CODE-STEEL, PUBLISHED BY THE AMERICAN NATIONAL STANDARDS INSTITUTE AS PREPARED BY THE AMERICAN WELDING SOCIETY.
- 2. PROPER LOCATION OF THE PEDESTAL CENTERLINES SHALL BE ESTABLISHED AT THE START OF CONSTRUCTION. THE PEDESTAL CONTRACTOR SHALL LOCATE THE PEDESTAL CENTERLINES ON THE SUPPORT SLAB AND/OR ON THE PEDESTAL WALL. (FOUR POINTS ON THE WALL) AFTER COMPLETION OF THE PEDESTAL CONSTRUCTION. (NOTE: CARDINAL CENTERINES AT THE TOP OF THE PEDESTAL ARE THE SAME AS THOSE AT THE BOTTOM OF PEDESTAL, AS INDICATED ON THE DRAWINGS BY CARDINAL GRID LOCATIONS (A), (B), (C), (D) AND (E).
- 3. USE LATEST EDITIONS FOR ALL REFERENCED SPECIFICATIONS AS OF SEPTEMBER 2004, UNLESS NOTED OTHERWISE.
- 4. ALL FABRICATION OR CONSTRUCTION SHALL PROCEED FROM DRAWINGS ISSUED FOR CONSTRUCTION" ONLY.
- 5. DESIGN LIVE LOADS IN ADDITION TO THE WATER TANK LOADS INDICATED OR REFERENCED ON DRAWINGS ARE AS FOLLOWS FOR THE WATER TANK PEDESTAL STRUCTURE:

ASCE STANDARD 7-05 (2005) BASIC WIND SPEED 90 MPH WIND IMPORTANCE FACTOR I - 1.15 EXPOSURE C TOPOGRAPHICAL FACTOR (KZt=1.0) GUST EFFECT FACTOR (G=0.85) DIRECTIONALITY FACTOR (K = 0.95) ROUND TANK
FORCE COEFF. - - - - - INTERPOLATED FOR h/d RATIOS
ROUND CROSS SECTION - - - - - - 0.6 TO 0.7 (INTERPOLATED BETWEEN MODERATELY SMOOTH TO ROUGH)

SEISMIC: 2009 INTERNATIONAL BUILDING CODE SEISMIC IMPORTANCE FACTOR I TE 1.5 SEISMIC USE GROUP II SOIL SITE CLASS D (PER GME CONSULTANTS, INC. GEOTECH ENGINEER) Sns = 0.059

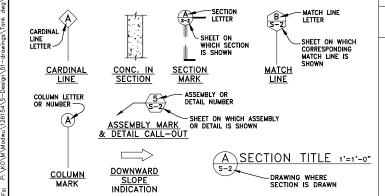
> SEISMIC DESIGN CATEGORY A RESPONSE MODIFICATION FACTOR R = 2.0

SNOW LOAD: 40 PSF (GROUND SNOW LOAD)

WALKWAY LIVE LOAD: 60 PSF

- 6. THE PEDESTAL WALL IS DESIGNED BASED ON JUMP FORM TECHNIQUES OF CONSTRUCTION.
- 7. THE PVC DRAIN LINE SHALL BE INSTALLED IN ACCORDANCE WITH ASTM STANDARD D2321.

SYMBOLS



CONCRETE

- 1. CONCRETE CONSTRUCTION SHALL MEET ACL 318-05, "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE". CONCRETE WORK SHALL CONFORM TO ACI 301-05, "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS". FORM WORK SHALL CONFORM TO ACI 347R-01, "GUIDE TO FORM WORK FOR CONCRETE", WHERE APPLICABLE.
- 2. THE SPECIFIED CONCRETE COMPRESSIVE STRENGTH (f'c) SHALL BE 4000 PSI UNLESS NOTED OTHERWISE ON THE DESIGN DRAWINGS. THE CONCRETE STRENGTHS NOTED ARE AT 28 DAYS. THE CONCRETE MIXES SHALL BE PROPORTIONED IN COMPLIANCE WITH THE REQUIREMENTS OF ACI 301-05, AND ACI 318-05.
- 3. ALL CONCRETE SHALL BE AIR ENTRAINED AS PER ACI 318-05 (SECTION 4.2). AIR ENTRAINING ADMIXTURES SHALL CONFORM TO "SPECIFICATIONS FOR AIR ENTRAINING ADMIXTURES FOR CONCRETE" (ASTM C260).
- 4. KEEP ONE COPY OF "FIELD REFERENCE MANUAL" (ACI PUBLICATION SP-15 [2004]) AT THE PROJECT FIELD OFFICE.
- 5. CURING AND PROTECTION OF ALL CONCRETE SHALL FOLLOW THE REQUIREMENTS OF ACI 301-05. CURING COMPOUNDS, IF USED, SHALL CONFORM TO ASTM C309. THE METHOD FOR CURING CONCRETE SHALL BE DETERMINED IN ACCORDANCE WITH ACI 308-05.
- 6. HOT WEATHER CONCRETING SHALL CONFORM TO ACI 305R-05.
- 7. COLD WEATHER CONCRETING SHALL CONFORM TO ACI 306R-05, EXCEPT CONCRETING MAY BEGIN WHEN THE TEMPERATURE IS 24 FAHRENHEIT AND RISING AND A PROTECTION METHOD IS ADEQUATE TO ALLOW 500 PSI STRENGTH GAIN BEFORE CONCRETE TEMPERATURE DROPS BELOW 32°
- 8. REINFORCEMENT STEEL SHALL BE DEFORMED AND MANUFACTURED TO ASTM A615 STANDARDS WITH A MINIMUM YIELD STRENGTH OF 60 KSI, EXCEPT AS NOTED OTHERWISE ON THE DESIGN DRAWINGS.
- 9. REINFORCEMENT STEEL SHALL NOT BE WELDED OR TACK WELDED WITHOUT PRIOR APPROVAL OF THE STRUCTURAL ENGINEER.
- 10 LAP REINFORCEMENT STEEL AS INDICATED ON DRAWINGS.
- 11. ADMIXTURES, IF USED, SHALL CONFORM TO ACI 318-05 UNLESS APPROVED THE ENGINEER. NO CALCIUM CHLORIDE OR ADMIXTURES CONTAINING CHLORIDE ARE TO BE USED AT ANY TIME.
- 12. UNLESS NOTED, MINIMUM CONCRETE COVER FOR REINFORCEMENT STEEL
 - FOR CONCRETE AGAINST GROUND
 - FOR FORMED OR SLIPPED SURFACES EXPOSED TO WEATHER OR
- SLAB AND WALL NOT EXPOSED TO WEATHER FOR ALL OTHER
- 13. PROVIDE 1.5" X 45" CHAMFER ON ALL EXPOSED CORNERS OF CONCRETE, UNLESS NOTED.
- 14. REPORT ANY CONSTRUCTION JOINTS NOT INDICATED ON DRAWINGS TO STRUCTURAL ENGINEER FOR REVIEW, PRIOR TO CONSTRUCTION.
- 15. PEDESTAL WALL REINFORCEMENT STEEL SHALL BE PLACED AS INDICATED ON DRAWINGS. TIE ALL HOOP BARS AT 8' MINIMUM C/C TO VERTICALS, OR AS NEEDED TO MAINTAIN THE SPECIFIED COVER. STAGGER ALL HOOP BAR LAPS UNLESS LAP LOCATION IS NOTED ON DRAWINGS. SEE DEFINITIONS OF TERMS AND TOLERANCES ON DWG. GN-1 FOR PLACEMENT OF HOOP
- 16. SETTING OF ALL WELD PLATES, ANCHOR BOLTS, SLEEVES OR INSERTS SHALL BE VERIFIED WITH ALL AFFECTED PARTIES WHERE POSSIBLE BEFORE CASTING CONCRETE.
- 17. ALL CONCRETE SHALL BE TESTED IN ACCORDANCE WITH ACI 301-05.
- 18. THE JUMP FORMED WALL SHALL HAVE A SMOOTH, AS FORMED FINISH WITH UNIFORMLY SPACED HORIZONTAL AND VERTICAL RUSTICATION STRIPS FOR AN EMBOSSED ARCHITECTURAL FINISH (NO GRINDING, RUBBING OR GROUT FINISH IS NECESSARY). ALL WALL SURFACES SHALL BE INSPECTED FOR DEFECTS SUCH AS HONEYCOMBED CONCRETE, ETC. AS DEFINED BY ACI 309.2R-05 AND REPAIRED.
- 19. THE SURFACE OF THE FOUNDATION, GRADE SLAB AND SUPPORT SLAB SHALL HAVE A WOOD FLOAT FINISH.

REINFORCEMENT STEEL BAR MARK NOMENCLATURE FOR BENT BARS ONLY

- PEDESTAL WALL STEEL FOUNDATION STEEL

R - ROOF STEEL FIRST LETTER OF BAR MARK C - COLUMN STEEL

FIRST NUMBER INDICATES BAR SIZE LAST TWO NUMBERS INDICATE MARK NUMBER WALL STEEL BAR SIZE

(AMPLE: W 5 01

EXAMPLE: ∼MARK NO. INFORMATION IN BAR LISTS: NO MARK NUMBER AND (-) FOR BAR TYPE INDICATES A STRAIGHT BAR ALL DIMENSIONS ARE OUT-TO-OUT FOR BENT BARS

STRUCTURAL STEEL

- COMPLY WITH THE REQUIREMENTS AND SPECIFICATIONS FOR FURNISHING, DETAILING, FABRICATING, AND ERECTION OF STRUCTURAL STEEL AS OUTLINED IN THE FOLLOWING DOCUMENTS (INCLUDING ALL SUPPLEMENTS, AND ADDENDA), UNLESS NOTED OTHERWISE ON THE DESIGN DRAWINGS:
- 1.1 AISC (AMERICAN INSTITUTE OF STEEL CONSTRUCTION)
 "SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF
 STRUCTURAL STEEL FOR BUILDINGS", ADOPTED JUNE 1, 1989.
- 1.2 AISC "CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES", ADOPTED SEPTEMBER 1, 1986.
- 1.3 AISC "SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS", APPROVED NOVEMBER 13, 1985.
- 1.4 AWS "STRUCTURAL WELDING CODE" (ANSI/AWS D1.1-2002), PREPARED BY THE AMERICAN WELDING SOCIETY, APPROVED BY AMERICAN NATIONAL STANDARDS INSTITUTE AUGUST 31, 2001.
- 2. THE REQUIRED STEEL TYPES AND MINIMUM YIELD POINTS ARE NOTED ON THE DRAWINGS. ANY DEVIATION FROM THE SPECIFIED STEEL
 DESIGNATION MUST BE APPROVED BY FACILITY DESIGN, INC. WHERE THE STEEL TYPE IS NOT SPECIFIED, USE 36 KSI MINIMUM YIELD POINT MATERIAL (ASTM A36).
- 3. ALL WELDING SHALL COMPLY WITH APPLICABLE ANSI/AWS, STRUCTURAL WELDING CODE SPECIFICATIONS. ALL WELDING SHALL BE PERFORMED WITH ANSI/AWS QUALIFIED WELDERS.
- 4. WELDING ELECTRODES FOR A36, A572 AND A992 STEEL SHALL BE E70XX, ER70S—X, OR E7XT—X AS APPLICABLE FOR THE WELD PROCESS SELECTED BY THE CONTRACTOR. THE MINIMUM YIELD STRENGTH OF THE WELDING ELECTRODES SHALL BE 60 KSI, AND THEY SHALL MEET THE REQUIREMENTS OF ANSI/AWS D1.1-2002. ELECTRODES HAVING LOW HYDROGEN COVERINGS SHALL BE PROTECTED AGAINST MOISTURE ACCORDING TO ANSI/AWS D1 1-2002
- 5. USE B" DIAMETER HIGH STRENGTH BOLTS (A325), EXCEPT AS NOTED ON DRAWINGS EXCLUDE THREADS FROM THE SHEAR PLANES.
- 6. WELD SHOP CONNECTIONS AND BOLT FIELD CONNECTIONS TO DEVELOP FULL CAPACITY OF MEMBERS, UNLESS NOTED OTHERWISE.
- 7. BEAMS SHALL BE FABRICATED WITH ANY SPECIFIED OR NATURAL CAMBER UPWARD, AS NOTED ON THE DRAWINGS.
- 8. ALL GROUT FOR BASE PLATES OR BEARING PLATES SHALL BE PREMIXED, NON-SHRINK, NONMETALLIC GROUT WITH A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 6,000 PSI.
- 9. SHOP FABRICATION DRAWINGS SHALL BE SUBMITTED TO THE STRUCTURAL ENGINEER PRIOR TO FABRICATION FOR COMPLIANCE WITH THE DESIGN INTENT SHOWN ON THE DESIGN DRAWINGS.

PAINTING

STRUCTURAL STEEL FLOOR FRAMING SHALL BE PREPARED AND PAINTED IN ACCORDANCE WITH THE FOLLOWING SPECIFICATIONS

- 1. PRIOR TO PAINTING, ALL STEEL SHALL BE CLEAN AND FREE OF OIL, GREASE, DIRT, ETC. THE SURFACE OF ALL STEEL SHALL BE COMMERCIALLY BLAST CLEANED IN ACCORDANCE WITH SSPC-SP-6
- 2. SHOP PRIMER COAT: RUST INHIBITIVE PRIMER 3 MILS DFT.
- 3. FINISH COAT: EPOXY OR POLYURETHANE 3 MILS DFT.

GAI VANIZING

1. ITEMS TO BE GALVANIZED

THE STEEL ITEMS TO BE HOT-DIP GALVANIZED (ZINC COATED) SHALL INCLUDE THE FOLLOWING:

- 1.1 ALL EXPOSED EXTERIOR MILD STEEL ITEMS.
- 1.2 STEEL DECK.
- 1.3 ANCHOR BOLTS & NUTS.
- 2. THE PREPARATION OF THE STEEL SURFACE AND THE APPLICATION OF THE GALVANIZING SHALL BE IN ACCORDANCE WITH ASTM A153, OR A653 AND A924 FOR STEEL DECK, FOR THE ABOVE NOTED ITEMS AND ANY OTHER ITEMS NOTED ON THE DESIGN DRAWINGS.

ALUMINUM

- 1. USE THE FOLLOWING ALUMINUM ALLOYS AS NOTED:
- 1.1 STRUCTURAL SHAPES, BARS, & PLATES: 6061-T6
- 1.2 PIPE AND TUBING: 6061-T6
- 1.3 SHEET ALUMINUM: 6061-T6

(MINIMUM YIELD STRENGTH Fy = 35 KSI.)

- 2. FOR WELDING ALUMINUM USE GMAW WITH 5356 WELD FILLER OR GTAW WITH 5356 WELD FILLER.
- 3. WALKWAY FRAMING, GRATING, PLATFORMS, LADDERS, AND HANDRAIL ARE TO BE CONSTRUCTED OF ALUMINUM
- 4. HANDRAIL POSTS SHALL BE SCHEDULE 80 ALUMINUM PIPE.

DEFINITION OF TERMS AND TOLERANCES FOR WALL REINFORCEMENT

		ILLUSTRATION	PLACING TOLERANCES
PIECE	ONE LENGTH OF BENT BAR ROLLED TO A SPECIFIC RADIUS	PAD.	
ноор	ONE COMPLETE CIRCLE MADE UP OF SEVERAL PIECES. EACH PIECE MUST LAP WITH THE ADJACENT PIECE BY THE SPECIFIED LAP. LAP LOCATIONS SHALL BE STAGGERED AS SPECIFIED BELOW.	PEDESTAL WALL	SEPARATE SPACING OF VERT. STL. SHALL BE ±6". ANY SINGLE HOOP SPACING MAY VARY ±25%, BUT NO MORE THAN 3". THE TOTAL NO. OF HOOPS WITHIN A GIVEN HEIGHT OF WALL MAY VARY NO MORE THAN: ±10% IN 5'-0"OF WALL HT. ±5% IN 10'-0"OF WALL HT. ±1% IN ENTIRE WALL HT. CLEAR COVER TO WALL FACE ± 1/2"
PARTIAL HOOP	A PARTIAL CIRCLE MADE UP OF TWO OR MORE PIECES		SAME AS HOOP
LAP STAGGER	AMOUNT OF OFFSET OF LAPS OF ADJACENT HOOPS AS ILLUSTRATED IN WALL ELEVATION AT RIGHT. LAPS IN ADJACENT HOOPS AT THE SAME ELEVATION NEED NOT BE STAGGERED.	1/3 (LENGTH OF PIECE— LAP LENGTH) LAP LENGTH	LAP LOCATION ±2'-0". LAP LENGTH - 0" OF MINIMUM LAP SPECIFIED

ABBREVIATIONS

-Floor
-Footing
-Foundation
-Steel Yield Strength

-Anchor Bolt -At
-Base or Bearing Plate
-Bear
-Bearing
-Bent
-Bottom Of
-Capacity
-Carbon Steel
-Center
-Center B.P. BM. BRG. BT. CAP. C.S. CTR. E CHD. C.C. CLR. -Chord -Clean Coal -Clear -Column CONC. —Concrete
CONSTRU. —Construction
C.J. —Construction Jo
CONT. —Continuous CONT. -Continuous
CONV. -Conveyor
CORR. -Corrugated
C.Y. -Cubic Yards
DET. -Detail
DIA. -Diameter
DIM. -Dimension
DWL. -Dowel
DWC. -Drawing
EA. -Each
E.E. -Each End
E.F. -Each Side
E.W. -Each Wag
LEV. -Elevated
EL. - Elevated -Each End -Each Face -Each Side -Each Way -Elevated -Elevation EL. EQ. NO. O/C C/C OPG. OPP. O.D. O.F. PART. EXIST. E.J. EXT. F.S. FAB. -Existing
-Expansion Joint
-Exterior
-Far Side

GA. -Gage GALV. -Galvanized GALV. - Galvanized
GEN. - General
GRT'G. - Grating
GRD. - Grade
H.R. - Handrail
HB - Header Beam
HEX. - Hexagon
H.S. - High Strength
HT. - Height
HORIZ.- Horizontal I.D. —Inside Diameter
I.DIM. —Inside Dimension
I.F. —Inside Face -Kip (1000 lb.)
-Kip Per Sq. Ft.
-Landing
-Location LOC. -Location
LONG. -Longitudinal
L.L.H. -Long Leg Horiz.
L.L.V. -Long Leg Vert.
LG. -Long or Length
MK. -Mark
MATL. -Material -Maximum -Mild Steel -Minimum MISC. -Miscellaneous N.S. -Near Side N.T.S. -Not To Scale

SCH. -Schedule
SHT. -Schedule
SHT. -Sheet
SPA. -Spaces
SPA. -Spacing
SPEC. -Specifications
SF -Square Feet
S.S. -Stainless Steel
STD. -Staindard
STL. -Steel
STIFF. -Stiffener
STOR. -Storage
STR. -Structural
STMM.-Symmetry
THK. -Thickness
TSF - Ton Per Sq.Ft.
T/ - Top Of
TRANS-Transverse TRANS-Transverse
TYP. -Typical
U.N. -Unless Noted
U.N.O.-Unless Noted Other
VERT. -Vertical
W.W.F.-Welded Wire Fabric
W/ -Without
W.P. -Workpoint -Number
-On Center
-Center to Cente -Opening
-Opposite → Workpoint -Diameter

R. -Plate
PLATF.-Platform
PSF -Lbs. Per Sq.Ft.
PSI -Lbs. Per Sq.In.
PROJ. -Projection
QTY. -Quantity
RAD. -Radius
R.C. -Raw Coal
REINF.-Reinforcing
REOD. -Required

REINF. - Reinforcin REQD. - Required REV. - Revision SECT. - Section SCH. - Schedule

ACI - American Control
AISC- American Institute of Steel
Construction
National Standar ANSI— American National Standards Institute - American Society of Civil Engineers

-Fabricate -Concrete Strength

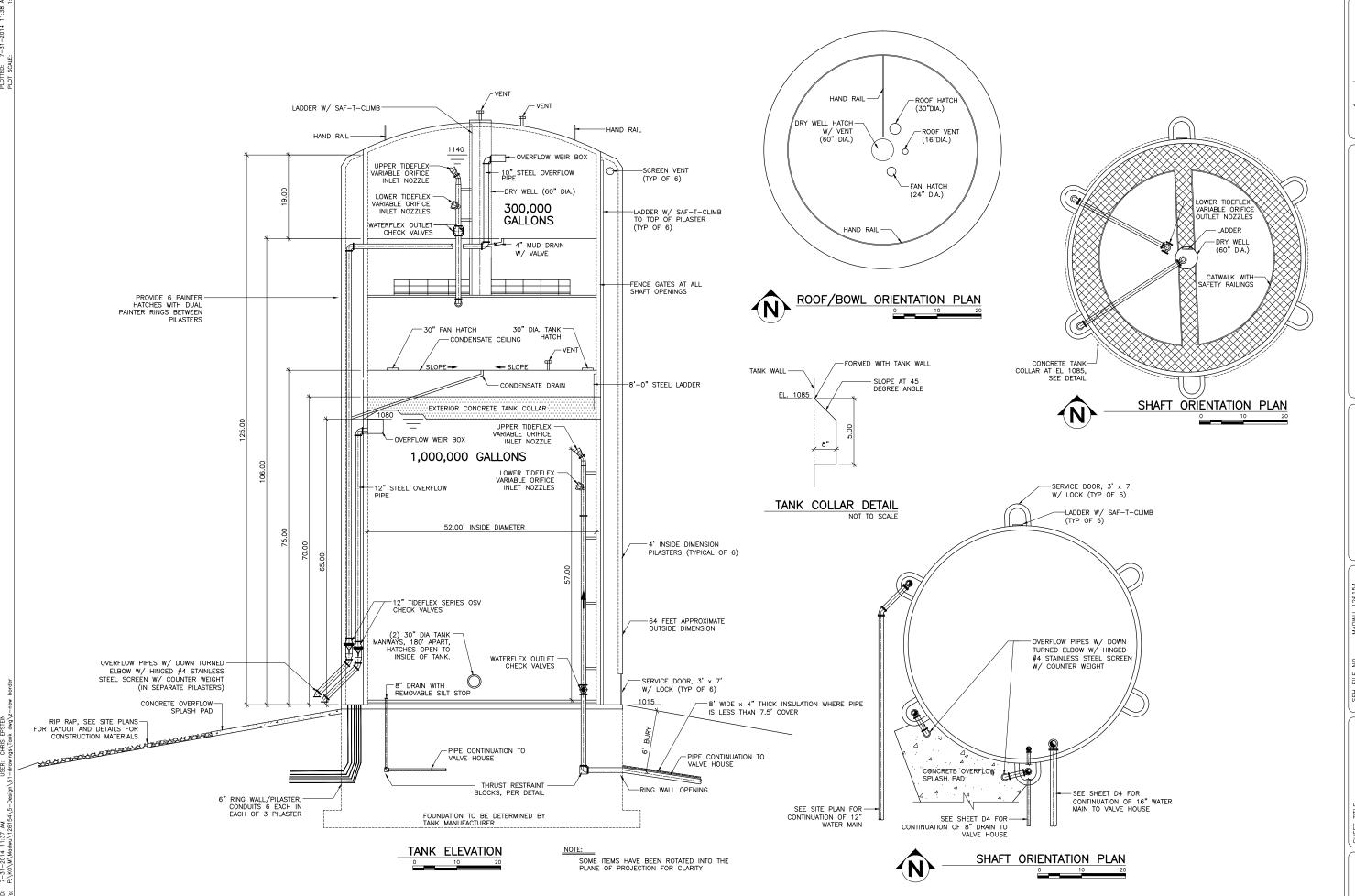
ASA— American Standards Assoc AWS— American Welding Society ASTM — American Society of Testing Materials AISE Association of Iron & Steel Engineers

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LAKEVIEW RESERVOIR REPLACEMENT PROJECTION MADISON, WISCONSIN

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LAKEVIEW RESERVOIR REPLACEMENT PROJECT MADISON, WISCONSIN

VIEW PLAN TANK CONCRETE ELEVATION ,

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SECTION CONCRETE TANK PROCESS PIPING

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09

UPPER TIDEFLEX -VARIABLE ORIFICE INLET NOZZLE LADDER W/ SAF-T-CLIMB └─OVERFLOW WEIR BOX LOWER TIDEFLEX -VARIABLE ORIFICE INLET NOZZLES -12" STEEL OVERFLOW PIPES 1,000,000 GALLONS 4' INSIDE DIMENSION PILASTER (TYPICAL OF 6) 52' INSIDE DIAMETER -64 FEET APPROXIMATE OUTSIDE DIMENSION OVERFLOW PIPES W/ DOWN TURNED— ELBOW W/ HINGED #4 STAINLESS STEEL SCREEN W/ COUNTER WEIGHT (IN SEPARATE PILASTERS) WATERFLEX OUTLET -CHECK VALVES -8" DRAIN WITH REMOVABLE SILT STOP SERVICE DOOR, 3' x 7' W/ LOCK (TYP OF 6) CONCRETE OVERFLOW -SPLASH PAD 1015 RIP RAP, SEE SITE PLANS— FOR LAYOUT AND DETAILS FOR CONSTRUCTION MATERIALS - AND THE RESERVE OF THE PARTY -8' WIDE x 4" THICK INSULATION WHERE PIPE IS LESS THAN 7.5' COVER - PIPE CONTINUATION TO VALVE HOUSE -THRUST RESTRAINT BLOCKS, PER DETAIL THRUST RESTRAINT -BLOCKS, PER DETAIL 6" RING WALL/PILASTER, -CONDUITS 6 EACH IN EACH OF 3 PILASTER RING WALL OPENING FOUNDATION TO BE DETERMINED BY TANK MANUFACTURER

PIPING ELEVATION

NOTE:

SOME ITEMS HAVE BEEN ROTATED INTO THE PLANE OF PROJECTION FOR CLARITY

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LAKEVIEW RESERVOIR
REPLACEMENT PROJECT
MADISON, WISCONSIN

PLOTTED: 7-31-2014 11:50 PLOT SCALE:

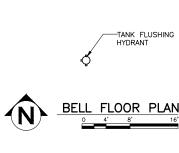
12" STEEL RISER W/ 4"-PIPE INSULATION AND ALUMINUM JACKET

OVERFLOW PIPE W/DOWN TURNED ELBOW W/
HINGED #4 STAINLESS
STEEL SCREEN W/
COUNTER WEIGHT

(6)

-VALVE HOUSE, SEE DETAILS

-SEE SITE PLAN FOR CONTINUATION OF 16" WATER MAIN



16" STEEL RISER-

CH 10

8" DRAIN WITH-REMOVABLE SILT STOP

CONCRETE OVERFLOW
 SPLASH PAD

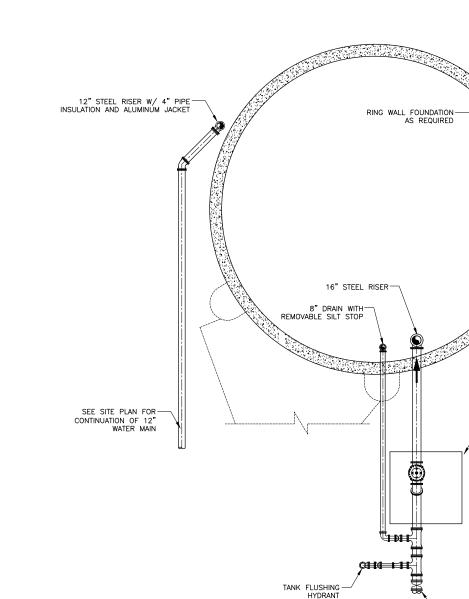
SERVICE DOOR 3' x 7'
W/ LOCK (TYP OF 6)

CONCRETE TANK WALL

-LADDER W/ SAF-T-CLIMB (TYP OF 6)

OVERFLOW PIPE W/
DOWN TURNED ELBOW W/
HINGED #4 STAINLESS
STEEL SCREEN W/
COUNTER WEIGHT

- 4'INSIDE DIMENSION PILASTER (TYPICAL OF 6)





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07-25-14 JON STRAND SID LARSON Inc. ® (SEH)

CONCRETE TANK PROCESS PIPING PLAN

SHEET

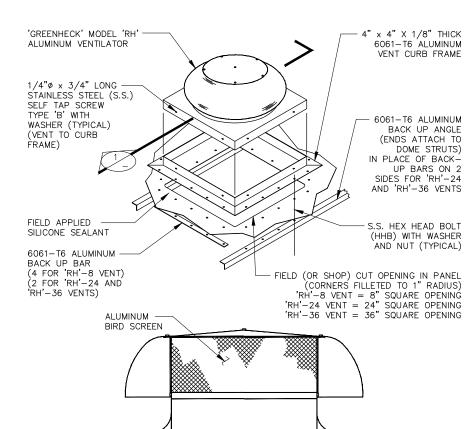
(TYPICALLY 4)

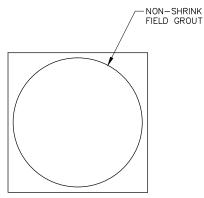
A STANDARD SQUARE ACCESS HATCH CONFIGURATION 11 STANDARD INSIDE CLEAR OPENING SIZE: 24"

* CUSTOM SIZES AVAILABLE

TO 1" RADIUS)

ACCESS HATCH LOCATIONS, QUANTITIES AND CLEAR OPENING DIMENSIONS SHOULD BE SHOWN ON THE PLANS. THE HATCH FRAME SHALL HAVE A VERTICAL DIMENSION OF AT LEAST 4" ABOVE THE DOME SURFACE. THE LID SHALL HAVE A DOWNWARD OVERLAP OF 2" BELOW THE TOP OF THE FRAME AND BE CONSTRUCTED OF 0.09" THICK 5052-H32 ALUMINUM. THE DOME PANEL OPENING AT THE HATCH SHALL BE REINFORCED BY 1/4" THICK x 1 1/4" ALUMINUM REINFORCING BARS FROM THE UNDERSIDE OF THE DOME PANEL.





12" x 12" OVER FLOW KNOCK OUT

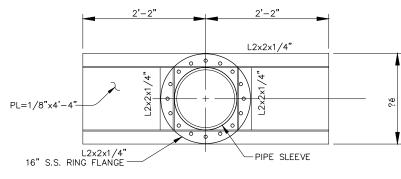
2. GENERALLY PLACED EVERY

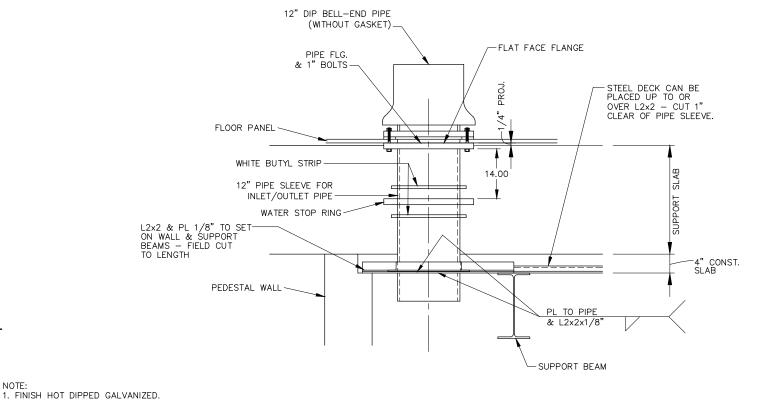
-SCH. 40 STEEL PIPE

12" INLET & OUTLET BRACKET 12" OVER FLOW BRACKET

10'-0"

PIPE BRACKET





ELEV.

12" PIPE SLEEVE AND REMOVABLE SILT RING DETAIL

- ONE 12" PIPE SLEEVE REQ'D.
- PLACE PIPE SLEEVE BEFORE SETTING STEEL DECK.

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LAKEVIEW RESERVOIR
REPLACEMENT PROJECT
MADISON, WISCONSIN

DETAILS

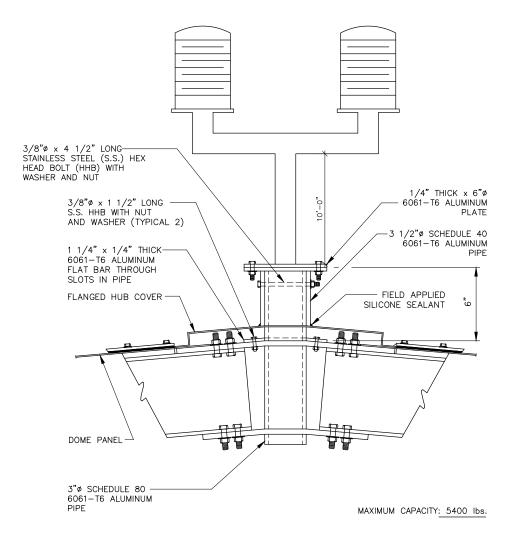
CONCRETE

07–25–14 JON STRAND SID LARSON Inc. ® (SEH)

12

WASHER AND NUT 1/4" THICK x 6"ø - 6061-T6 ALUMINUM PLATE 3/8"ø x 1 1/2" LONG —— S.S. HHB WITH NUT AND WASHER (TYPICAL 2) -3 1/2"ø SCHEDULE 40 6061-T6 ALUMINUM 1 1/4" x 1/4" THICK— 6061-T6 ALUMINUM FLAT BAR THROUGH PIPE SLOTS IN PIPE FIELD APPLIED SILICONE SEALANT FLANGED HUB COVER -DOME PANEL -1 3"Ø SCHEDULE 80 — 6061—T6 ALUMINUM PIPE MAXIMUM CAPACITY: 5400 lbs.

SCADA ANTENNA MOUNT N.T.S.



FAA OBSTRUCTION LIGHTS N.T.S.





LAKEVIEW RESERVOIR
REPLACEMENT PROJECT
MADISON, WISCONSIN

DC - ERC - H - MP - S - TR - TS -	MERCURY VAPOR MANHOLE MECHANICAL MOUNTING PANEL MOTOR OPERATOR MOTOR STARTER MOTOR STARTER	
A	NORMALY CLOSED NATIONAL ELECTRICAL CODE NON-FUSED NORMALY OPEN NAMEALY OPEN NAMEALY OPEN NAMEALY E	VOIR SUECT 4SIN
A - L - NT - U -	OVERLOAD RELAY OFF-NORMAL-TEST	SERVOIR PROJECT SCONSIN
A BB CC /E FF H L NL RR RR F F F F F	PUSHBUTTON SWITCH PHOTOCELL PNEUMATIC/ELECTRIC PEDESTAL POWER FACTOR PHASE PHA	LAKEVIEW RE REPLACEMENT MADISON, WIS
C -	REMOTE CONTROL	-

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126154 07–25 R.J.B. B.E.F. B S H F SEH FILE N PROJECT NG ISSUE DATE DESIGNED E DRAWN BY

TITLE CTRICAL SYMBOLS ABBREVIATIONS SHEET THE ELECTION

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SYMBOL DESCRIPTION SYMBOL DESCRIPTION ABBREVIATION DESCRIPTION DESCRIPTION AMMETER, AMPERE
ALTERNATING CURRENT
AMPERE FRAME
ABOVE FINSHED GRADE
ABOVE FINSHED GRADE
AMOUNT SWITCH, AMPERE SENSOR
ADJUSTABLE SPEED CONTROLLER
ART SUPPLY
AMFERS TRIP
AUTOMATIC TRANSFER SMITCH
AUTOMATIC TRANSFER SMITCH
AMERICAN WIRE GAUGE -CONTACT - NORMALLY OPEN WITH NEMA SIZE INDICATED AS APPLICABLE. LOUVER
LIGHTING ARRESTOR
LIGHTING CONTACTOR
LOCK OUT
LOCATION
LOW PRESSURE SODIUM
LOW PRESSURE SODIUM
LOCKED ROTOR AMPS
LOW SPEED
LIGHTING
LIGHTING TIGHT FLEX CONDUIT
LOW VOLTAGE MAJOR ELECTRICAL COMPONENT OR DEVICE -NAME OR IDENTIFYING SYMBOL AS SHOWN. ФН TELEPHONE OUTLET - FLUSH WALL MOUNTED CONTACT - NORMALLY CLOSED WITH NEMA SIZE INDICATED AS APPLICABLE. HOME RUN - DESTINATION SHOWN WALL SWITCH (WHERE X SUBSCRIPT INDICATES) $-\infty$ SINGLE POLE
CORROSION RESISTANT
DIMMER
EXPLOSION PROOF
KEY OPERATED
PILOT LIGHT
WEATHERPROOF
DOUBLE POLE
THREE WAY
FOUR WAY DATA OUTLET - FLUSH WALL MOUNTED $\exists \vdash \infty -$ MAGNETIC STARTER WITH NEMA SIZE INDICATED REV INDICATES REVERSING STARTER. SPECIAL PURPOSE OUTLET OR DEVICE MCP/100 CIRCUIT BREAKER, MAGNETIC TRIP ONLY, FRAME SIZE SHOWN, 3 POLE UNLESS INDICATED OTHERWISE. BRACKET SYMBOL INDICATES COMMON ENCLOSURE AND PLATE CIRCUIT BREAKER, THERMAL MAGNETIC TRIP SHOWN, 3 POLE UNLESS INDICATED OTHERWISE, FRAME SIZE AND TRIP RATING SHOWN, IF ADJUSTABLE. 1-x-CONVENIENCE RECEPTACLE - DUPLEX UNLESS SPECIFIED OTHERWISE MOUNT 48"AFF, UNLESS OTHERWISE NOTED. ĸ KEYPAD, BACK LITE, FLUSH WALL MOUNTED. MOTOR - REFER TO SCHEDULE, INTERNAL NUMBER INDICATES HORSE POWER. 400 400 MOTOR STARTER SWITCH (MANUAL) 400 225 FUSED SWITCH, SWITCH AND FUSE CURRENT RATING INDICATED, 3 POLE UNLESS INDICATED OTHERWISE. MULTI-PARTY WALL MOUNTED COMMUNICATIONS SYSTEM STATION WITH INTEGRAL AMPLIFIER VARIABLE SPEED CONTROL - FAN SWITCH — CURRENT RATING INDICATED, 3 POLE UNI ESS INDICATED OTHERWISE. DC DISC DIV DPR DUP DRAWOUT VACUUM CONTACTOR, MEDIUM VOLTAGE, CURRENT RATING INDICATED. DRAWOUT AIR CIRCUIT BREAKER, LOW VOLTAGE COMBINATION MOTOR STARTER/DISCONNECT SWITCH ADJUSTABLE SOLID STATE OR STATIC TRIP CIRCUIT BREAKER, 3 POLE - CONTINUOUS CURRENT TRIP INDICATED. 400/ST EMPTY
ELECTRIC BASE BOARD
ELECTRICAL CONTRACTOR
EXHAUST FAN
END OF LINE RESISTOR
EMERGENCY
ELECTRICAL METALLIC TUBING
ENCLOSURE
EXPLOSION PROOF
ELAPSED TIME METER
EXPOSED DRAWOUT VACUUM CIRCUIT BREAKER, MEDIUM VOLTAGE MOTOR STARTING SWITCH WITH TERMINAL OVERLOADS TYPICAL EQUIPMENT TAG NAME. SEE I AND C LEGEND OR ELECTRICAL ABBREVIATIONS FOR EXPLANATION. **≪** ~ □ **→** DRAWOUT FUSED SWITCH, MEDIUM VOLTAGE SAFETY/DISCONNECT SWITCH NON-FUSED, NEMA 12 PUBLICATION SWITCH
PHENDER SWITCH
PHENDATIC /ELECTRIC
PEDESTAL
POWER FACTOR
PHASE
PILOT LIGHT
PANEL
PRIMARY
PRESSURE SWITCH
POLYMINE CHLORIDE COND (X,Y) ď. SAFETY/DISCONNECT SWITCH-FUSED, NEMA 12 SAFETY/DISCONNECT SWITCH WON FUSED, NEMA 4X STAINLESS STEEL D'NE/W (X) KEYED NOTE, REFER TO LIST OF NOTES ON PLANS. F, FU FA FBO FC FDR FIXT FLA FLUOR FR FUT FUSE
FIRE ALARM
FURNISHED BY OTHERS
FOOT CANDLE
FEEDER
FIXTURE
FULL LOAD AMPS
FLUORESCENT
FRACTIONAL
FUTURE ——I (10 CAPACITOR - KVAR INDICATED DISCONNECT SWITCH, FUSED, NEMA 4X STAINLESS STEEL LIGHT OUTLET, CEILING MOUNT, INCANDESCENT OR H.I.D., SHADING INDICATES EMERGENCY, R INDICATED RED. METER WITH SWITCH - SCALE RANGE SHOWN S REMOTE CONTROL
RECEPTACLE
REFERENCE
REFLECTOR
REMOTE MULTIPLEXER
ROOT MEAN SQUARE
RIGID STEEL CONDUIT
REMOTE TELEMETRY ---GROUND LIGHT OUTLET, WALL MOUNT, INCANDESCENT OR H.I.D., HEIGHT AS INDICATED. ЖH © COMPUTER CABLE OUTLET **₩**, ₩ TRANSFORMER, SECONDARY VOLTAGES, PHASE AND RATING INDICATED AS APPLICABLE. GALVANIZED
GENERATOR
GENERAL
GENERAL
GROUND FAULT INTERRUPTER
GROUND FAULT RELAY
GROUND
GALVANIZED RIGID STEEL ANNUNCIATOR, SYSTEMS NOTED \Box WALL MOUNTED FLUORESCENT FIXTURE SPEED CONTROL
SECONDARY
SUPPLY FINE
SUPPLY FINE
SHIELD, SHIELDED
SIGNAL
SOLID NEUTRAL
STANDBY POWER
SPECIAL PURPOSE OUTLET
STATC TRIP
STANDARY PURPOSE OUTLET
STATC TRIP
STANDARY PURPOSE OUTLET
STATC TRIP
STANDARY
SWITCH BOARD
SWITCH GEAR
SYSTEM GFR 25A 0.1 TIME CURRENT CHARACTERISTIC GROUND FAULT RELAY WITH C.T. FLUORESCENT FIXTURE - SHADING INDICATES EMERGENCY CIRCUI BRANCH CIRCUIT HOMERUN TO PANELBOARD WITH CIRCUIT NO. HORN, HOWLER HEAVY DUTY TRACK LIGHT FIXTURE - LENGTH SCALED OR SPECIFIED, QUANTITY OF FIXTURES AS SHOWN. PUSH-BUTTON SWITCH, MOMENTARY CONTACT, NORMALLY OPEN. HEAVY DUTY
HANDHOLE
HIGH INTENSITY DISCHARGE
HAND-OFF-AUTO
HIGH PRESSURE SODIUM
HIGH PRESSURE SODIUM
HIGH PRESSURE
HEATING
HEATING
HEATING
HEATING
HEATING
HEATING/EXPILIATION/COOLING
HEATING/EXPILIATION/AIR CONDITIONING
HEATING/EXPILIATION/AIR CONDITIONING
HEATING/EXPILIATION/AIR CONDITIONING VERTICAL CONDUIT RUNS DOWN, ID DARKENED IS OPEN STEP, AISLE OR NIGHT LIGHT **———** PUSH-BUTTON SWITCH, MOMENTARY CONTACT, NORMALLY CLOSED. \neg CONDUIT STUB, CAPPED **₹** WIREMOLD WITH MULTIPLE OUTLETS PUSH BUTTON SWITCH, MAINTAINED CONTACTS WITH MECHANICAL INTERLOCK. EXIT LIGHT, CEILING MOUNT, SHADED SIDE INDICATES "EXIT" FACE. SINGLE POLE SWITCH EXIT LIGHT, WALL MOUNT, HEIGHT AS INDICATED, SHADED SIDE INDICATES "EXIT" FACE. **~** 3 POSITION SELECTOR SWITCH MAINTAINED CONTACT SPRINKLER SYSTEM FLOW SWITCH ISOLATE GROUND
INSTRUMENTATION AND CONTROL
INTERCOM
INTERMEDIATE METAL CONDUIT
INCANDESCENT
INSTANTANEOUS
INTERMEDIATE
INTRINSICALLY SAFE RELAY
IN UNIT THERMOSTAT
TERMINAL BOARD
TIME CLOCK
TIME DELAY RELAY
TELEPHONE
TERMINAL(ATE)
TERMINAL JUNCTION BOX
TRANSFORMER (XFMR)
TIME SWITCH 1991 SPRINKLER SYSTEM TAMPER SWITCH EXIT LIGHT WITH DIRECTIONAL ARROW(S) AS INDICATED. TIME DELAY RELAY CONTACT (TIME ACTION INDICATED) TDR DUCT-MOUNTED SMOKE DETECTOR LOCAL LINE VOLTAGE SWITCH - MOUNTED 48" AFF DLS - DUAL LEVEL SWITCHING (INNER/OUTER LAMPS)
PL - PILOT LIGHT
3 - 3 WAY FIRE ALARM SMOKE DETECTOR JUNCTION BOX, J BOX FIRE ALARM HEAT DETECTOR KEY INTERLOCK
THOUSAND CIRCULAR MILL
KNOCKOUT
KILOVOLTS
KILOWATT HOURS SELECTOR SWITCH — MAINTAINED CONTACT — CHART IDENTIFIES OPERATION: OCCUPANCY SENSOR K KCMIL KO KV KWH DOUBLE CONTACT SMOKE DETECTOR POSITION

CKT. HAND OFF AUTO CEILING DUAL TECHNOLOGY (PIR/ULTRASONIC)
 CEILING ULTRASONIC VOLTS VOLT AMPERES VARIABLE FREQUENCY DRIVE V – VA – VFD – CEILING ULTRASONIC
DUAL LEVEL SWITCHING (INNER/OUTER LAMPS)
POWER PACK
SLAVE PACK
WALL MOUNTED
WEATHER PROOF
TWO INDEPENDENT LTG. LOADS
3 WAY FIRE ALARM MANUAL PULL STATION WATT, WATTMETER WITHOUT WEATHERPROOF W -W/O -WP - \bigcirc INDICATING LIGHT - LETTER INDICATES COLOR FA vo FIRE ALARM SIGNAL - VISUAL INDICATOR LOW VOLTAGE SWITCH STATION END OF LINE RESISTOR FA s □'_{NF/EXP} DISCONNECT SWITCH, NON-FUSED, NEMA (sv) (BV) ELECTRICALLY OPERATED BALL VALVE TIME CLOCK, NUMBERED AS SHOWN SV ₽ 0 HQ SECURITY, ACCESS CONTROL AND DOOR MONITORING - PROVIDE ROUGH-IN ONLY. VERIFY EXACT LOCATION OF DEVICES WITH SECURITY CONTRACTOR. DUPLEX, GROUNDING RECEPTACLE, COUNTER HEIGHT OR AS INDICATED. DENOTES THE FOLLOWING: SINGLE, GROUNDING RECEPTACLE DUPLEX, GROUND FAULT CIRCUIT INTERRUPTER DUPLEX, GROUNDING RECEPTACLE, WEATHERPROOF ALUMINUM IN-USE LOCKABLE COVER. GENERAL NOTES: DUPLEX, GROUND FAULT CIRCUIT INTERRUPTER WITH ALUMINUM INUSE LOCKABLE COVER. 3. FOR I & C COMPONENTS AND ABBREVIATIONS, SEE I & C LEGEND GROUNDING RECEPTACLE (EXPLOSION PROOF) 4. FOR GENERAL ABBREVIATIONS, SEE GENERAL LEGEND.

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UNIT NUMBER (USED WHEN THERE ARE MULTIPLE UNITS WITH THE SAME W-X DESIGNATIONS) LOOP NUMBER UNIT PROCESS NUMBER

COMPONENT SPECIFICATION AND FURNISH CODE

1 1:00 O'CLOCK POSITION ON SYMBOL, AS NOTED

N PANELS, PACKAGED SYSTEMS, OR OTHER I&C
EQUIPMENT SYMBOLS

NONE = SPECIFIED AND FURNISHED VIA I&C
DIVISION 26 09 01

*M = SPECIFIED AND FURNISHED IN MECHANI-CAL/EQUIPMENT DIVISION 11 AND 15

E = SPECIFIED AND FURNISHED IN
ELECTRICAL DIVISION 26 09 01

★ P = SPECIFIED AND FURNISHED WITH ASSOCIATED PACKAGE SYSTEM

EXST = EXISTING EQUIPMENT

FIELD MOUNTED INSTRUMENT FIELD MOUNTED INSTRUMENT FIELD MOUNTED INSTRUMENT INTRINSICALLY SAFE

FIELD MOUNTED INSTRUMENT THAT REQUIRES 120VAC AT THE DEVICE

REAR-OF-PANEL MOUNTED INSTRUMENT

FACE OF PANEL MOUNTED INSTRUMENT MOTOR CONTROL CENTER MOUNTED INSTRUMENT

SPECIAL CASES (@ 2 O'CLOCK POSITION ON SYMBOL)

 \bigcirc

 \ominus

 \ominus

HS

HS

YL O

YL OC ZL OPENED AND CLOSED POSITION LIGHTS ₹S[°] OPENED AND CLOSED POSITION SWITCHES HS 00

ON AND OFF EVENT LIGHTS

STOP-START HAND SWITCH. MOMENTARY CONTACT SWITCHES (CONTROLLED DEVICE WILL NOT RESTART ON RETURN OF POWER AFTER POWER FAILURE).

ON-OFF-REMOTE-AUTO EVENT LIGHTS

HS HAND-OFF-AUTOMATIC HAND SWITCH.
MAINTAINED CONTACT SELECTION OOR OOR

ON-OFF-REMOTE EVENT LIGHTS EXAMPLE:

INSTRUMENT SOCIETY OF AMERICA TABLE

	FIRST LETT	ER(S)	SUCCEEDING	LETTERS	
	PROCESS OR INITIATING VARIABLE	MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
Α	ANALYSIS(†)		ALARM		
В	BURNER, COMBUSTION		USER'S CHOICE (†)	USER'S CHOICE (†)	USER'S CHOICE (†)
С	USER'S CHOICE (†)			CONTROL	
D	USER'S CHOICE (†)	DIFFERENTIAL	SENSOR (PRIMARY ELEMENT)		
Ε	VOLTAGE				
F	FLOW RATE	RATIO(FRACTION)			
G	USER'S CHOICE (†)		GLASS, VIEWING DEVICE		
н	HAND				HIGH
1	CURRENT		INDICATE		
J	POWER	SCAN			
K	TIME OR SCHEDULE	TIME RATE OF CHANGE		CONTROL STATION	
L	LEVEL		LIGHT		LOW
М	USER'S CHOICE (†)	MOMENTARY			MIDDLE
N	USER'S CHOICE (†)		USER'S CHOICE (†)	USER'S CHOICE (†)	USER'S CHOICE (†)
0	USER'S CHOICE (†)		ORIFICE, RESTRICTION		
Ρ	PRESSURE (OR VACUUM)		POINT (TEST CONNECTION)		
Q	QUANTITY	INTEGRATE			
R	RADIATION		RECORD		
S	SPEED, FREQUENCY	SAFETY		SWITCH	
Т	TEMPERATURE			TRANSMIT	
U	MULTIVARIABLE (†)		MULTIFUNCTION (†)	MULTIFUNCTION (†)	MULTIFUNCTION (†)
٧	VIBRATION			VALVE, DAMPER, LOUVER	
W	WEIGHT, FORCE		WELL		
Х	UNCLASSIFIED (†)	X AXIS	UNCLASSIFIED (†)	UNCLASSIFIED (†)	UNCLASSIFIED (†)
Υ	EVENT, STATE	Y AXIS		RELAY OR COMPUTE (†)	
Z	POSITION, DIMENSION	Z AXIS		DRIVE. ACTUATE OR UNCLASSIFIED FINAL CONTROL ELEMENT	

(†) WHEN USED, EXPLANATION IS SHOWN ADJACENT TO INSTRUMENT SYMBOL. SEE ABBREVIATIONS AND LETTER SYMBOLS.

TRANSDUCERS (@ 2 O'CLOCK POSITION ON SYMBOL)

Α	ANALOG	1	CURRENT	1/1	SIGNAL ISOLATOR
D	DIGITAL	Р	PNEUMATIC	R/I	RESISTANCE TO CURRENT
E	VOLTAGE	PF	PULSE FREQUENCY		CORREIN
F	FREQUENCY	PD	PULSE DURATION	СТ	CURRENT

INSTRUMENT PANEL LOCATION IDENTIFICATION

(HS)OSC OPEN-STOP-CLOSE
MOMENTARY CONTACT CONTROL SWITCH FIHK FLOW INDICATING, COMPUTER/MANUAL CONTROL STATION

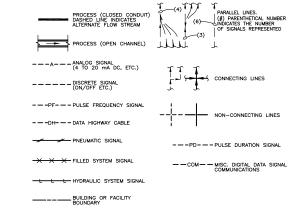
FIC FLOW INDICATING, COMPUTER/AUTO/MANUAL CONTROL STATION FIC FLOW INDICATING SUPERVISORY SET POINT (BY COMPUTER), AUTO/MANUAL CONTROL STATION

 \bigcirc INTEGRAL Ö

PROGRAMMABLE CONTROLLER INPUT OR OUTPUT

TELEMETRY INPUT OR OUTPUT

LINE LEGEND



MISCELLANEOUS EQUIPMENT

MISCELLANEOUS EQUIPMENT AND INSTRUMENTS

PHANTOM LINE INDICATES TYPICAL FUNCTIONS FOR SIMILAR PROCESS SYSTEMS AS NOTED

INTERFACE SYMBOLS



 \bigcirc = SIGNAL INTERFACE = UNIT PROCESS NO.

= DESTINATION SHEET NO

= SOURCE SHEET NO.

ABBREVIATIONS & LETTER SYMBOLS

BUILDING CONTROL PANEL COMPUTER-AUTO-MANUAL CHLORINE COMPUTER MANUAL CHEMICAL OXYGEN DEMAND

DIFFERENCE DIRECT CURRENT DIGESTER CONTROL PANEL DISSOLVED OXYGEN SQUARE ROOT

HORN, HOWLER HAND-OFF-AUTO HAND-OFF-REMOTE HYDROGEN SULFIDE

DIVIDE

PCP -PROCESS CONTROL PANEL HYDROGEN ION CONCENTRATION RM-X - REMOTE MULTIPLEXING MODULE NO. X RTD - RESISTANCE TEMPERATURE DETECTOR

THERMOCOUPLE

- MULTIPLY - RAISE TO THE Nth POWER

GENERAL NOTE:

THIS IS A STANDARD LEGEND. NOT ALL INFORMATION SHOWN MAY BE USED ON THIS PROJECT.



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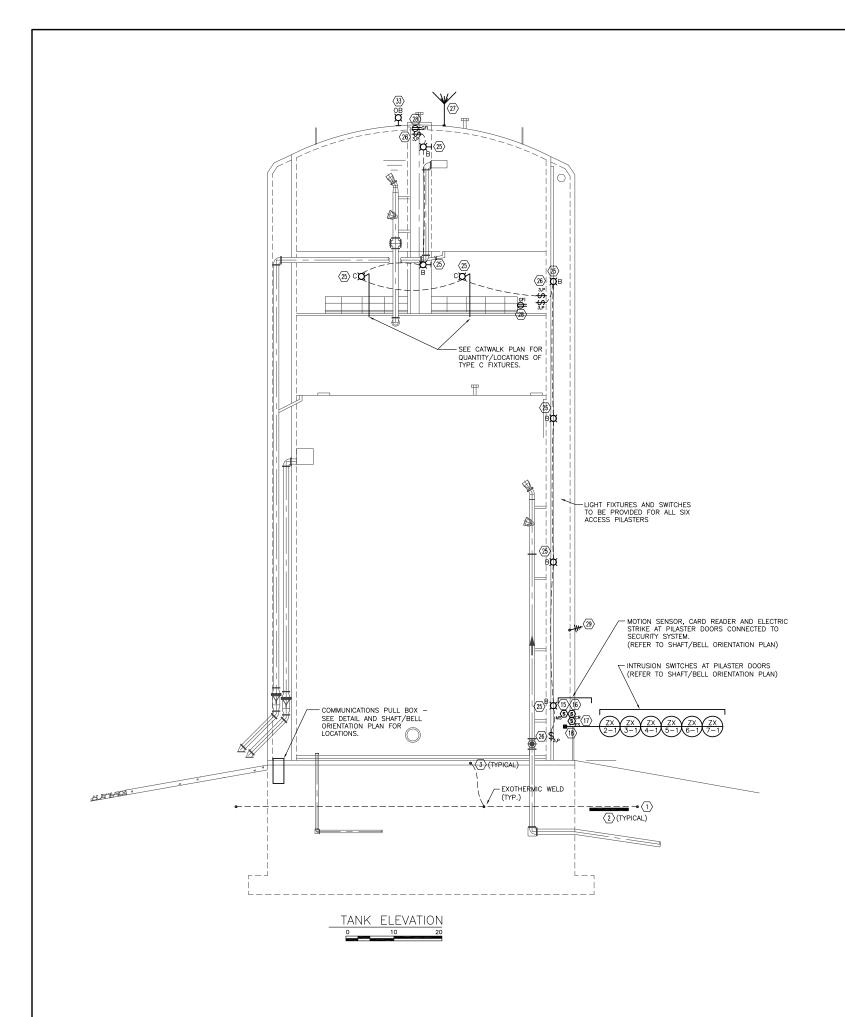
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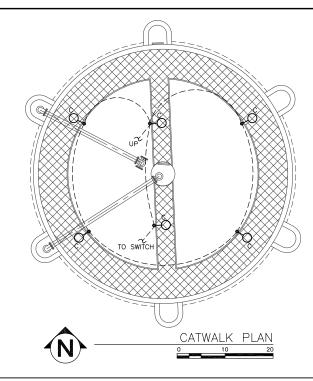
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SHEET TITLE
INSTRUMENTATION
SYMBOLS AND
ABBREVIATIONS

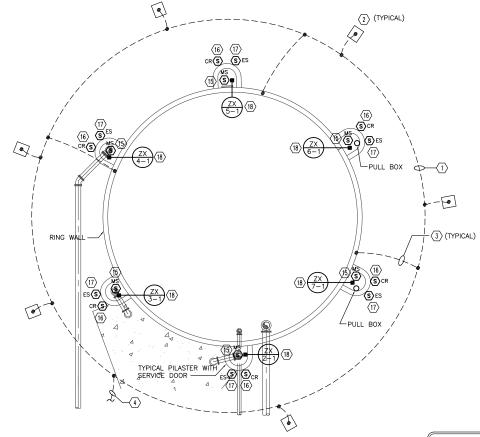
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NOTES:

- 1. SEE SHEET E5 FOR KEYED NOTES.
- 2. OWNER'S SCADA INTEGRATOR IS LW ALLEN.
- 3. OWNER'S SECURITY SYSTEM INTEGRATOR IS INNOVATIVE SYSTEMS (9880 SOUTH RIDGEWAY DRIVE, OAK CREEK, WI, 53154, 1-800-750-7350). A \$20,000 ALLOWANCE SHALL BE INCLUDED IN BID TO BE ADJUSTED AT FINAL PAYMENT IN ACCORDANCE WITH THE ACTUAL CHARGES FOR ALL EQUIPMENT REQUIRED FOR A COMPLETE SYSTEM.
- 4. PROVIDE REQUIRED CONDUIT/WIRING BETWEEN SCADA AND SECURITY PANELS AS REQUIRED FOR OPERATION OF ACCESS/INTRUSION CONTROLS. COORDINATE EXACT INSTALLATION REQUIREMENTS WITH SCADA AND SECURITY INTEGRATORS FOR ALL WORK.
- DRAWINGS ARE BASED ON STEEL TANK STRUCTURE. ANY ADDITION GROUNDING, BONDING AND LIGHTNING PROTECTION SHALL BE PROVIDED AS APPROPRIATE FOR A CONCRETE TANK STRUCTURE.







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N H

LAKEVIEW RESERVOIR REPLACEMENT PROJECT MADISON, WISCONSIN

DATE DESCRIPTIO REVISIONS

-25-14 B. F.

DATE 077
NED BY R.J
N BY B.E
Elliott Hendrickson, Inc.
4 Short Elliott Hendricks

SHEET TITLE
PROPOSED ELECTRICAL
WATER TOWER PLANS

SHEET

MARK

MADWU 126154 07-25-14 R.J.B. B.E.F.

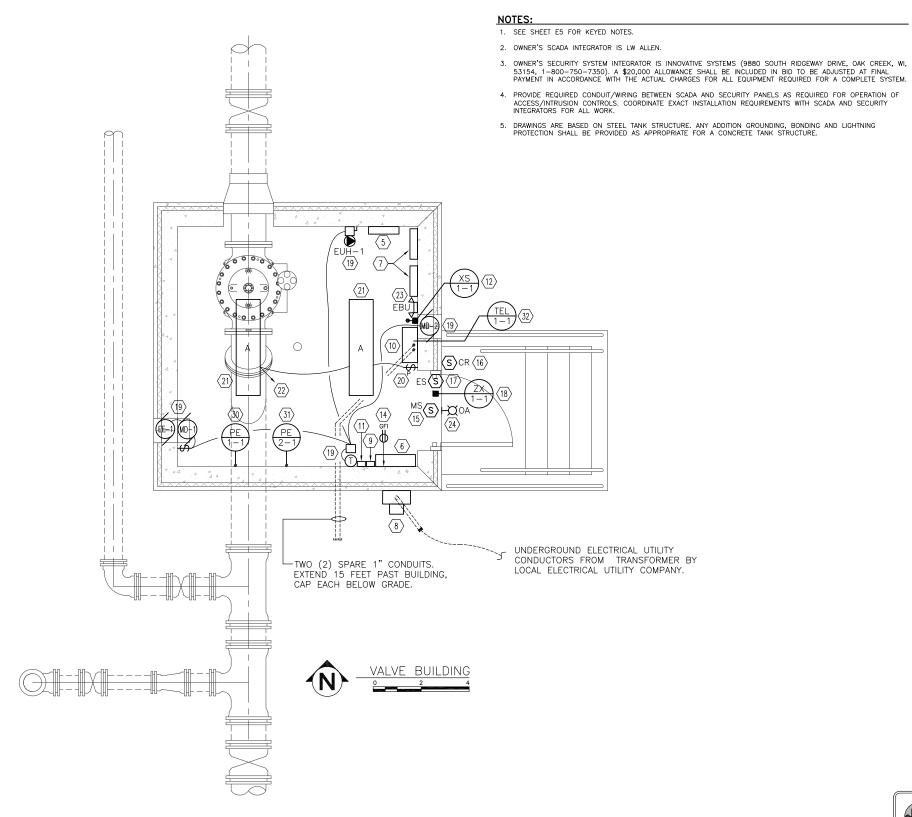
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ort Elliott Hendrickson

SHEET TITE VALVE BUILDING ELECTRICAL PLAN

SHEET

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- (3) PROPOSED 4/0 BARE COPPER GROUND CONDUCTOR FROM THE COUNTERPOISE AND ROUTED INTO THE STRUCTURE WHERE IT SHALL BE BOLTED USING UL LISTED LUGS TO THE STEEL BASE EVERY 90 DEGREES. THE CONDUCTOR SHALL BE EXOTHERMICALLY WELDED TO THE COUNTERPOISE CONDUCTOR.
- (4) PROPOSED #2 AWG BARE COPPER GROUNDING CONDUCTOR ROUTED FROM THE COUNTERPOISE TO PANELBOARD A.
- (5) PROPOSED SECURITY PANEL AND POWER SUPPLY PROVIDED BY THE OWNER'S SYSTEM INTEGRATOR.

THE ELECTRICAL CONTRACTOR SHALL ROUTE A 3/4 INCH CONDUIT WITH 2 #12 CONDUCTORS AND 1 #12 GROUND FROM PANELBOARD A, CKT. ?? TO POWER THE SECURITY CONTROL PANEL AND POWER SUPPLY.

- (6) PROPOSED PANELBOARD A FURNISHED, INSTALLED AND WIRED BY THE ELECTRICAL CONTRACTOR. MOUNT THE PANELBOARD 60 INCHES ABOVE FINISHED FLOOR, MEASURED TO TOP OF ENCLOSURE. SEE ONE—LINE DIAGRAM FOR ADDITIONAL INFORMATION.
- (7) CATHODIC PROTECTION (RECTIFIER) PANEL. (TYPICAL OF 2).

THE ELECTRICAL CONTRACTOR SHALL ROUTE A 3/4 INCH CONDUIT WITH 2 #10 CONDUCTORS AND 1 #10 GROUND FROM PANELBOARD A, CKTs #16 & 18 TO POWER THE RECTIFIER PANELS.

- B PROPOSED SERVICE ENTRANCE 0-200 AMP RATED METER SOCKET WITH LEVER BYPASS FURNISHED, INSTALLED AND WIRED BY THE ELECTRICAL CONTRACTOR. COORDINATE METER SOCKET MANUFACTURER & MODEL NUMBER WITH LOCAL ELECTRICAL UTILITY COMPANY. THE UTILITY METER WILL BE FURNISHED AND INSTALLED BY LOCAL ELECTRICAL UTILITY COMPANY. THE UTILITY METER WILL BE FURNISHED AND INSTALLED BY LOCAL ELECTRICAL UTILITY COMPANY. THE UTILITY METER WILL BE FURNISHED, INSTALLED AND TERMINATED BY LOCAL ELECTRICAL UTILITY COMPANY, PROVIDE TEMPORARY CONDUIT CAP DURING CONSTRUCTION FOR CONDUIT BELOW GRADE, NO GLUE, PRESSURE FIT ONLY, PROVIDE PLASTIC BUSHING BEFORE UTILITY CONDUCTORS ARE INSTALLED.
- (9) PROPOSED SURGE ARRESTOR FURNISHED, INSTALLED AND WIRED BY THE ELECTRICAL CONTRACTOR. MOUNT THE SURGE ARRESTOR UNDER THE PANELBOARD AS SHOWN WITH THE SHORTEST POSSIBLE LEAD LENGTH. THE ELECTRICAL CONTRACTOR SHALL ROUTE A 3/4 INCH CONDUIT WITH 3 #10 CONDUCTORS & 1 #10 GROUND FROM THE SURGE ARRESTOR TO PANELBOARD A, CIRCUITS #2 & 4.
- (10) PROPOSED SCADA PANEL FURNISHED BY THE OWNERS SYSTEM INTEGRATOR AND INSTALLED BY THE ELECTRICAL CONTRACTOR. MOUNT THE SCADA PANEL 60 INCHES ABOVE FINISHED FLOOR, MEASURED TO TOP OF ENCLOSURE. SEE SCADA PANEL DETAILS FOR I/O LIST AND REQUIRED FIELD EQUIPMENT WIRING. THE ELECTRICAL CONTRACTOR SHALL ROUTE A 3/4 INCH CONDUIT WITH 2 #12 CONDUCTORS & 1 #12 GROUND FROM THE SCADA PANEL TO PANELBOARD A, CIRCUIT #13.
- (11) PROPOSED PHASE LOSS RELAY WITH ENCLOSURE FURNISHED BY THE OWNERS SYSTEM INTEGRATOR AND INSTALLED BY THE ELECTRICAL CONTRACTOR. SEE DIAGRAM FOR INFORMATION.
- PROPOSED WATER BUG XS-1-1 FURNISHED BY THE OWNERS SYSTEM INTEGRATOR, INSTALLED AND WIRED TO THE SCADA PANEL BY THE ELECTRICAL CONTRACTOR. THE ELECTRICAL CONTRACTOR SHALL ROUTE A 3/4 INCH CONDUIT WITH 4 #14 CONDUCTORS & 1 #14 GROUND TO THE SCADA PANEL.
- (13) PROPOSED LOW TEMPERATURE THERMOSTAT TEL-1-1 FURNISHED, INSTALLED AND WIRED ON THE FRONT OF SCADA PANEL BY THE OWNERS SYSTEM INTEGRATOR.
- PROPOSED RECEPTACLE (GFI CB PROTECTED) LOCATED IN THE VALVE BUILDING FURNISHED, INSTALLED AND WIRED BY THE ELECTRICAL CONTRACTOR. THE RECEPTACLES SHALL BE MOUNTED AT THE LOCATIONS SHOWN AND SHALL INCLUDE METAL COVERS.

THE RECEPTACLES SHALL BE WIRED TO PANELBOARD A, CIRCUIT #5 AS SHOWN ON THE PANEL SCHEDULE WITH 3/4 INCH CONDUIT WITH 2 #10 CONDUCTORS & 1 #10 GROUND. NOTE THE CIRCUIT BREAKER IS A GFI TYPE PER THE SCHEDULE.

- (5) PROPOSED SECURITY MOTION DETECTOR FURNISHED BY THE OWNER'S SECURITY SYSTEM INTEGRATOR AND INSTALLED BY THE ELECTRICAL CONTRACTOR.
- THE MOTION SENSOR SHALL BE GE SECURITY MODEL 6187CTXN OR ENGINEER APPROVED EQUAL.

THE ELECTRICAL CONTRACTOR SHALL ROUTE A 3/4 INCH CONDUIT FOR 4 #14 CONDUCTORS (2 FOR POWER/2 FOR CONTROL) FROM THE MOTION DETECTOR TO THE SECURITY CONTROL PANEL.

- (6) PROPOSED SECURITY CARD READER LOCATED AT EXTERIOR OF BUILDING OR PILASTER DOOR. PROVIDED BY THE OWNER'S SECURITY SYSTEM INTEGRATOR.
- THE CARD READERS SHALL BE INDALA TYPE.

THE ELECTRICAL CONTRACTOR SHALL ROUTE A 3/4 INCH CONDUIT FOR CARD READER CABLE FROM THE CARD READER TO THE SECURITY CONTROL PANEL.

- (17) ELECTRIC STRIKE. STRIKE PROVIDED BY OTHERS
 - THE ELECTRICAL CONTRACTOR SHALL ROUTE A 3/4 INCH CONDUIT FOR 2 #14 CONDUCTORS FROM THE ELECTRIC STRIKE TO THE SECURITY CONTROL PANEL.
- (B) PROPOSED INTRUSION SWITCH MOUNTED AT BUILDING OR PILASTER DOOR. FURNISHED BY THE OWNERS SYSTEM INTEGRATOR AND INSTALLED AND WIRED TO THE SCADA PANEL BY THE ELECTRICAL CONTRACTOR. THE ELECTRICAL CONTRACTOR SHALL ROUTE A 3/4 INCH CONDUIT WITH 2 #14 CONDUCTORS TO THE SCADA PANEL.
- PROPOSED 5 KW, 240 VOLT 1 PHASE ELECTRIC UNIT HEATER WITH INTEGRAL DISCONNECT SWITCH, EXHAUST FAN EF-1 WITH FILTERED MOTORIZED INTAKE DAMPER MD-2 AND EXHAUST DAMPER MD-1 AND THERMOSTAT, FURNISHED AND INSTALLED BY THE ELECTRICAL CONTRACTOR.

THE OWNER'S SYSTEM INTEGRATOR SHALL FURNISH THE HEATING AND COOLING CONTROL ENCLOSURE AS SHOWN ON THE HEAT/COOL CONTROL DIAGRAM THE HEATER SHALL BE PROVIDED BY A 5.0 KW VERTICAL DELIVERY PROJECTION UNIT. THE UNIT HEATER SHALL BE Q-MARK MODEL MUH05-21, WITH NO SHARP EDGES ON ITS OUTER SHELL OR ENGINEER APPROVED EQUAL. THE HEATER SHALL BE COMPLETE WITH INTEGRAL AUTOMATIC RESET HIGH LIMIT THERMAL CUTOUTS, CONTACTOR WITH 24-VOLT COIL, 24 VOLT CONTROL TRANSFORMER, INTEGRAL DISCONNECT SWITCH AND NECESSARY WALL MOUNTING BRACKET(S) AND HARDWARE. THE AIR DISCHARGE SHALL INCLUDE ADJUSTABLE DIRECTIONAL LOUVERS

THE HEATER SHALL BE DESIGNED FOR 240 VOLT, SINGLE—PHASE OPERATION. THE HEATER SHALL BE LOCATED AS SHOWN ON THE PLANS AND SHALL BE INSTALLED ON THE INTERIOR WALL USING THE MANUFACTURER'S STANDARD WALL BRACKET. THE ELECTRICAL CONTRACTOR SHALL INSTALL A JUNCTION BOX ON THE WALL NEAR THE HEATER LOCATION AND ROUTE A 3/4 INCH CONDUIT WITH 2 #10 CONDUCTORS AND 1 #10 GROUND FROM PARLEBOARD A, CKT #6 & 8 TO THE UNIT HEATER'S INTERGRAL DISCONNECT SWITCH. THE ELECTRICAL CONTRACTOR SHALL INSTALL THE JUNCTION BOX ON THE WALL AS INCHES AFF TO CONVERT FROM CONDUIT TO FLEXIBLE LIQUID TIGHT CONDUIT. THE ELECTRICAL CONTRACTOR SHALL INSTALL THE JUNCTION BOX ON THE WALL AS INCHES AFF TO CONVERT FROM CONDUIT TO FLEXIBLE LIQUID TIGHT CONDUIT. THE ELECTRICAL CONTRACTOR SHALL INSTALL THE JUNCTION BOX ON THE WALL AS INCHES AFF TO CONVERT FROM CONDUIT TO FLEXIBLE LIQUID.

VENTILATION SHALL BE PROVIDED BY A 500 CEM OR HIGHER AT 250" S.P. WALL MOLINTED EXHALIST FAN WITH FACTORY FLECTRICALLY OPERATED DAMPERS WITH MOTORS VICTION OF THE EXHAUST FAN SHALL BE GREENHECK OR ENGINEER APPROVED EQUAL MOUNTED 7"-0" ABOVE FINISHED FLOOR AND THE LOUVER SHALL BE GREENHECK OR ENGINEER APPROVED EQUAL MOUNTED 7"-0" ABOVE FINISHED FLOOR AND THE LOUVER SHALL BE AMERICAN WARMING OR ENGINEER APPROVED EQUAL FACTORY PAINTED WHITE ENAMEL AND MOUNTED 7'-0" ABOVE FINISHED FLOOR. THE INTAKE AND EXHAUST SHALL BE EQUIPPED WITH BUG SCREENS AND THE INTAKE SHALL INCLUDE A REPLACEABLE AIR FILTER WITH EASY ACCESS.

THE ELECTRICAL CONTRACTOR SHALL INSTALL THE EXHAUST FAN SYSTEM AND ROUTE 3/4 INCH CONDUIT WITH 2 #12 CONDUCTORS & 1 #12 GROUND FROM EACH MOTORIZED DAMPER AND THE EXHAUST FAN TO THE HEATING AND COOLING CONTROL ENCLOSURE AND A 3/4 INCH CONDUIT WITH 2 #12 & 1 #12 GROUND FROM PANEL L1, CKT #19 TO THE DISCONNECT SWITCH. THE ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL THE 15 AMP, 120, 1 PHASE, NEMA 1, DISCONNECT SWITCH FOR THE EXHAUST FAN AND MOTORIZED DAMPERS FROM THE HEATING AND COOLING CONTROL PANEL.

THE ELECTRICAL CONTRACTOR SHALL MOUNT AN ELECTRICAL JUNCTION BOX ON THE WALL FOR THE THERMOSTAT AND INSTALL THE CONDUIT FOR THE THERMOSTAT AND ALL RELATED CONTROL WIRING FROM THE HEATING AND COOLING CONTROL ENCLOSURE. THE LOW VOLTAGE WIRING (24VAC) SHALL BE FURNISHED AND INSTALLED BY THE

THE ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL A LINE VOLTAGE RATED THERMOSTAT WITH AUTOMATIC CHANGEOVER HEATING-COOLING CONTROL AND MANUAL FAN SWITCH. THERMOSTAT SHALL BE RATED 8 AMPERES AT 240-VOLTS WITH 46 TO 84 DEGREE FAHRENHEIT RANGE. THERMOSTAT SHALL BE HONEYWELL T605B1013 WITH Q651A1009 SUB-BASE OR ENGINEER APPROVED EQUAL. THE THERMOSTAT SHALL OPERATE ON 24 VAC. THE UNIT HEATER SHALL BE SET TO OPERATE AT 55 DEGREES OR LOWER AND THE FAN/LOUVER SHALL BE SET TO OPERATE AT 80 DEGREES.

- (20) PROPOSED SINGLE POLE LIGHT SWITCH WITH PILOT LIGHT THAT IS ON WHEN THE SWITCH IS IN THE OFF POSITION FURNISHED, INSTALLED AND WIRED BY THE ELECTRICAL CONTRACTOR. THE SWITCH SHALL BE LOCATED NEAR THE ENTRANCE (MANDOOR) 48 INCHES ABOVE FINISHED FLOOR, MEASURED TO TOP OF THE BACK BOX.
- (21) PROPOSED CEILING MOUNTED LIGHT FIXTURES PER THE FIXTURE SCHEDULE FURNISHED, INSTALLED AND WIRED BY THE ELECTRICAL CONTRACTOR.
- (2) THE ELECTRICAL CONTRACTOR SHALL ROUTE A 3/4 INCH CONDUIT WITH 2 #12 CONDUCTORS AND 1 #12 GROUND TO EACH FIXTURE AND FROM THE LIGHT SWITCH AND CIRCUIT BREAKER LOCATED IN PANELBOARD A, CIRCUIT #1.
- PROPOSED INTERIOR MOUNTED TYPE EBU EMERGENCY LIGHT FIXTURE FURNISHED, INSTALLED AND WIRED BY THE ELECTRICAL CONTRACTOR. MOUNT 8 FEET AFF. THE ELECTRICAL CONTRACTOR SHALL ROUTE A 3/4 INCH CONDUIT WITH 2 #12 CONDUCTORS AND 1 #12 GROUND TO THE FIXTURE AND FROM THE LIGHT SWITCH AND CIRCUIT BREAKER LOCATED IN PANELBOARD A, CIRCUIT #1.

- PROPOSED EXTERIOR MOUNTED TYPE OA LIGHT FIXTURE FURNISHED, INSTALLED AND WIRED BY THE ELECTRICAL CONTRACTOR. MOUNT 1-FOOT ABOVE DOOR. THE ELECTRICAL CONTRACTOR SHALL ROUTE A 3/4 INCH CONDUIT WITH 2 #12 CONDUCTORS AND 1 #12 GROUND TO EACH FIXTURE AND FROM THE LIGHT SWITCH AND CIRCUIT BREAKER LOCATED IN PANELBOARD A, CIRCUIT #3.
- (25) PROPOSED LIGHT FIXTURE MOUNTED ALONG THE LENGTH OF THE SHAFT OR CATWALK, FURNISHED, INSTALLED AND WIRED BY THE ELECTRICAL CONTRACTOR.
 THE ELECTRICAL CONTRACTOR SHALL ROUTE A 3/4 INCH CONDUIT WITH 2 #12 CONDUCTORS AND 1 #12 GROUND TO EACH FIXTURE AND FROM THE LIGHT SWITCH AND CIRCUIT BREAKER LOCATED IN PANELBOARD A, CIRCUIT #11.
- PROPOSED 3-WAY LIGHT SWITCH(ES) AS INDICATED WITH PILOT LIGHTS THAT ARE ON WHEN THE SWITCHES ARE IN THE OFF POSITION FOR THE FIXTURE(S) TYPE 'B' FURNISHED, INSTALLED AND WIRED BY THE ELECTRICAL CONTRACTOR. THE SWITCH SHALL BE LOCATED NEAR THE LADDER IN AN ACCESSIBLE LOCATION.

THE ELECTRICAL CONTRACTOR SHALL ROUTE A 3/4 INCH CONDUIT WITH 3 #12 CONDUCTORS AND 1 #12 GROUND FROM EACH SWITCH IN THE PROPER WIRING METHODS TO THE CIRCUIT BREAKER LOCATED IN PANELBOARD A, CIRCUIT #11 AND TO THE LIGHT FIXTURES.

- (27) PROPOSED STATIC DISSIPATOR FURNISHED AND INSTALLED BY THE ELECTRICAL CONTRACTOR AS SHOWN ON THE DETAIL. THE STATIC DISSIPATOR SHALL BE THE MANUFACTURER AND MODEL SHOWN OR ENGINEER APPROVED EQUAL
- PROPOSED RECEPTACLE (GFI CB PROTECTED) LOCATED IN THE WATER TOWER FURNISHED, INSTALLED AND WIRED BY THE ELECTRICAL CONTRACTOR. THE RECEPTACLES SHALL BE MOUNTED AT THE LOCATIONS SHOWN AND SHALL INCLUDE METAL COVERS.

THE RECEPTACLES SHALL BE WIRED TO PANELBOARD A, CIRCUIT #12 AS SHOWN ON THE PANEL SCHEDULE WITH 3/4 INCH CONDUIT WITH 2 #10 CONDUCTORS & 1 #10 GROUND. NOTE THE CIRCUIT BREAKER IS A GFI TYPE PER THE SCHEDULE.

- 29 PROPOSED SCADA ANTENNA AND ANTENNA CABLE FURNISHED BY THE OWNER'S SYSTEM INTEGRATOR AND INSTALLED BY THE ELECTRICAL CONTRACTOR. THE ELECTRICAL CONTRACTOR SHALL INSTALL A 2" SCHEDULE 80 PVC CONDUIT AS A CONTINUOUS SLEEVE FOR SUPPORTING THE CABLE AND TIE THE CABLE TO THE REMAINING STRUCTURE AS DIRECTED BY THE TANK MANUFACTURER AND OWNER'S SYSTEM INTEGRATOR.
- (30) PROPOSED UPPER ELEVATED TANK LEVEL TRANSDUCER PE-1-1 WITH GATE VALVE FURNISHED BY THE OWNER'S SYSTEM INTEGRATOR AND MOUNTED BY THE ELECTRICAL CONTRACTOR.

THE TRANSDUCER SHALL BE FOXBORO MODEL IGP20 OR ENGINEER APPROVED EQUAL WITH 4/20 MADC OUTPUT, LOOP POWERED MADE FROM 316L STAINLESS STEEL, SILICON FILLED FLUID, 0-180 DEGREES F AND 0-100% HUMIDITY WITH A +/-.10% ACCURACY AND LESS THAN 1% DRIFT OVER A 12 MONTH PERIOD. THE TRANSDUCER SHALL INCLUDE A 1/2 INCH CONDUIT CONNECTION. THE TRANSDUCER SHALL INCLUDE THE APPROPRIATE LENGTH OF CABLE FROM THE TRANSDUCER LOCATION TO THE SCADA CONTROL PANEL. THE OWNER'S SYSTEM INTEGRATOR SHALL FIELD VERIFY IN THE FIELD BEFORE ORDERING.

THE ELECTRICAL CONTRACTOR SHALL ROUTE A 3/4 INCH CONDUIT TO A NEMA 4X PVC JUNCTION BOX TO THE SCADA CONTROL PANEL AND A 1/2 INCH LIQUID TIGHT FLEXIBLE METAL CONDUIT TO THE TRANSDUCER FROM THE JUNCTION BOX. THE ELECTRICAL CONTRACTOR SHALL ROUTE THE TRANSDUCER CABLE INTO THE SCADA CONTROL PANEL FOR THE OWNER'S SYSTEM INTEGRATOR TO TERMINATE.

(3) PROPOSED LOWER ELEVATED TANK LEVEL TRANSDUCER PE-2-1 WITH GATE VALVE FURNISHED BY THE OWNER'S SYSTEM INTEGRATOR AND MOUNTED BY THE ELECTRICAL CONTRACTOR.

HE TRANSDUCER SHALL BE FOXBORO MODEL IGP20 OR ENGINEER APPROVED EQUAL WITH 4/20 MADC OUTPUT, LOOP POWERED MADE FROM 316L STAINLESS STEEL SILICON FILLED FLUID, 0-180 DEGREES F AND 0-100% HUMIDITY WITH A +/-.10% ACCURACY AND LESS THAN 1% DRIFT OVER A 12 MONTH PERIOD. THE TRANSDUCER SHALL INCLUDE A 1/2 INCH CONDUIT CONNECTION. THE TRANSDUCER SHALL INCLUDE THE APPROPRIATE LENGTH OF CABLE FROM THE TRANSDUCER LOCATION TO THE SCADA CONTROL PANEL. THE OWNER'S SYSTEM INTEGRATOR SHALL FIELD VERIFY IN THE FIELD BEFORE ORDERING.

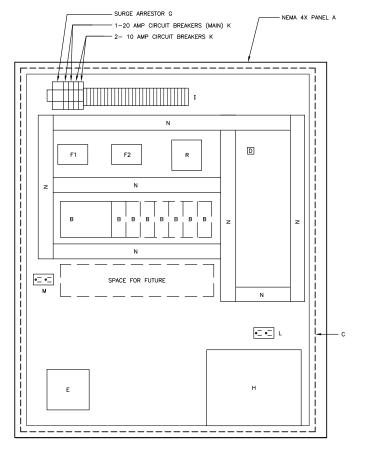
THE ELECTRICAL CONTRACTOR SHALL ROUTE A 3/4 INCH CONDUIT TO A NEMA 4X PVC JUNCTION BOX TO THE SCADA CONTROL PANEL AND A 1/2 INCH LIQUID TIGHT FLEXIBLE METAL CONDUIT TO THE TRANSDUCER FROM THE JUNCTION BOX. THE ELECTRICAL CONTRACTOR SHALL ROUTE THE TRANSDUCER CABLE INTO THE SCADA CONTROL PANEL FOR THE OWNER'S SYSTEM INTEGRATOR TO TERMINATE.

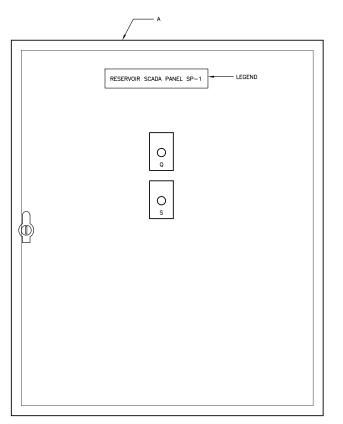
- ⟨夏⟩ PROPOSED LOW TEMPERATURE THERMOSTAT TEL-1-1 FURNISHED, INSTALLED AND WIRED ON THE FRONT OF SCADA PANEL BY THE OWNERS SYSTEM INTEGRATOR.
- $\langle \overline{33} \rangle$ PROPOSED OBSTRUCTION LIGHT/PHOTOCONTROL

THE ELECTRICAL CONTRACTOR SHALL ROUTE A 3/4 INCH CONDUIT WITH 2 #12 CONDUCTORS AND 1 #12 GROUND TO THE CIRCUIT BREAKER LOCATED IN PANEL A, CKT. #7

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LAKEVIEW RESERVOIR REPLACEMENT PROJECTION MADISON, WISCONSIN





INTERIOR VIEW

EXTERIOR VIEW

RESERVOIR SCADA PANEL SP-1 LAYOUT

		RESE	RVOIR SCADA PA	ANEL SP-1 - BILL OF I	MATERIALS
KEYED	NAME OR DESCRIPTION	NO.	RECOMMENDED SUPPLIER	PART OR CATALOG	NOTES:
ETTER.	OF EQUIPMENT	REQ'D	OF EQUIPMENT	NUMBER	
١	ENCLOSURE, NEMA 4X, RIGHT HAND HINGE, WALL MOUNTED, TYPE 304	1	HOFFMAN	A42H3010SSLP	42 INCHES HIGH X 30 INCHES WIDE & 10 INCHES DEEP, WITH BACK PANEL
	PROGRAMMABLE LOGIC CONTROLLER (PLC) WITH I/O	1	ALLEN BRADLEY	MICROLOGIX 1400	PROVIDE ALL CABLES, SEE NOTE 8.
;	1/2" FIBERGLASS INSULATION WITH FOIL BACKING	AS REQ'D	SYSTEM INTEGRATOR		FRONT, BACK, SIDES, TOP & BOTTOM
)	WATCHDOG RELAY	1	CUTLER-HAMMER	D7PR31A/E42AF1124120	INCLUDES PLUG-IN BASES
	PANEL HEATER	1	HOFFMAN	DAH2001A	WITH INTEGRAL THERMOSTAT
1 & F2	120 VOLT/24VDC POWER SUPPLIES	2	PHEONIX CONTACT	CM 62-PS-120AC/24 DC/1-GN	UPS CONNECTED
	TRANSIENT VOLTAGE SURGE SUPPRESSION (TVSS)	1	PHEONIX CONTACT	2807586 VAL-MS 120 ST	
1	1000 VA UPS, SHELF MOUNTED	1	CUTLER-HAMMER	EATON 9130 UPS UNIT	TOWER MOUNT WITH RELAY INTERFACE CARD
	TERMINAL BLOCKS/ACCESSORIES	AS REQ'D	PHOENIX CONTACT	TYPE UK	
	NOT USED				
	PANEL CIRCUIT BREAKERS	AS REQ'D	PHEONIX CONTACT	TMC SERIES	20 AMP & 10 AMP
	RECEPTACLE	1	HUBBELL	5261	UPS POWER
1	GFCI PANEL RECEPTACLE	1	HUBBELL	GF5262	USER RECEPTACLE
	WIRE DUCT	AS REQ'D	PANDUIT	G1.5XG2LG6	LIGHT GREY WITH COVERS
)	WIRE MARKERS	AS REQ'D	BRADY	PS1DP-111-187	NOT SHOWN
	WIRE, 600 VOLT, MTW	AS REQ'D	DISTRIBUTOR	#14 AWG STRANDED COPPER	NOT SHOWN
	LOW TEMPERATURE ALARM	1	JOHNSON CONTROLS	A19BAC-1	
	RADIO, TRANSNET SPREAD SPECTRUM TRANSCEIVER	1	GE	9810	PROVIDE SURGE ARRESTOR AND ANTENNA WITH CABLES
	INTRUSION ENABLE/DISABLE BUTTON	1			

NOTES:

- 1 PROVIDE RED FOR 120V WIRING. PROVIDE WHITE FOR NEUTRAL WIRING. PROVIDE GREEN FOR GROUND WIRING.
- 2 PROVIDE 1/2" LETTERS
- 3 USE OUTPUT CONTACT ON PLC TO POWER ALARM SIGNAL DEVICE.
- 4 PROVIDE HOFFMAN C-WHK KEY LOCK KIT WITH ENCLOSURE.
- QUANTITY OF TERMINAL BLOCKS SHOWN IS FOR, PROVIDE AS REQUIRED.
 ADD 30% SPARE AFTER ALL WIRING INCLUDING SPARE CONDUCTORS ARE
 ACCOUNTED FOR.
- 7 PROVIDE PROCESSOR BACK PLANE, 24 VDC POWER SUPPLY. COMMUNICATION CARD AND DIGITAL & ANALOG I/O AS SHOWN.

GENERAL NOTES:

- 1. SUPPLIER'S NAME AND PART OR CATALOG NUMBERS ARE PROVIDED AS A MEANS OF ESTABLISHING CONFORMANCE STANDARDS FOR PERFORMANCE AND RATING, TESTING, AND MATERIALS.
 OTHER EQUIPMENT MAY BE SUBSTITUTED IF APPROVED BY THE ENGINEER. THE PART OR CATALOG NUMBERS ARE CURRENT, IF PART NUMBERS ARE INDICATING BY THE SUPPLIER, FURNISH EQUIPMENT THAT MEETS OR EXCEEDS THE PART OR CATALOG NUMBER SHOWN.
- 3. PROVIDE INTERFACE RELAYS AS REQUIRED PER PLANS.
- 4. FRONT PANEL LAYOUT IS SHOWN FOR GENERAL CONFORMANCE ONLY.
- 5. PROVIDE 30% SPARE TERMINAL BLOCKS.
- 6. PROVIDE A MINIMUM OF 3" OF ISOLATION FOR ANALOG CABLES. 7. PROVIDE TWO (2) 4-20 MA INPUTS FOR FUTURE INSTRUMENTATION.

- 11. ROUTE PRESSURE TRANSDUCER CABLES TO PANEL IN CONDUIT.
- 12. THE ANTENNA SHALL BE MOUNTED ON THE TOP OF THE WATER TOWER AS SHOWN ON THE DETAIL. THE ELECTRICAL CONTRACTOR SHALL ROUTE ANTENNA CABLE UP TO THE TOP OF TANK FROM THE PANEL.
- 14. THE ELECTRICAL CONTRACTOR SHALL REPLACE THE EXISTING PRESSURE TRANSDUCER LOCATED IN THE WATER TOWER.
- THE SCADA PANEL SHALL BE LOCATED ON THE EQUIPMENT BACKBOARD AS SHOWN ON THE PLANS.
- 16. SEE SHEET E8 FOR 1/0 LIST.
- 17. OWNER'S SCADA CONTRACTOR TO VERIFY AND ADJUST EQUIPMENT AS REQUIRED.





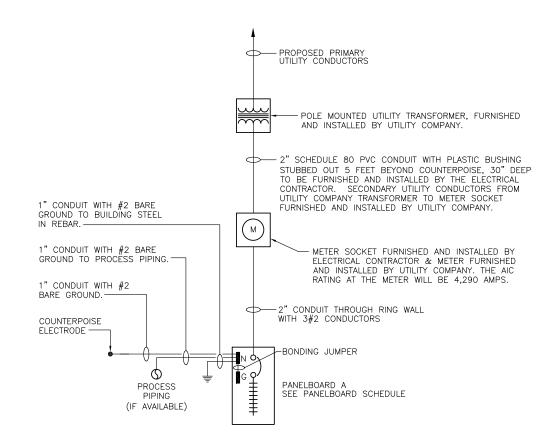
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DETAILS

PANEL SCADA P

SHEET

BUS AMPS:	125	MAIN:				MOUN	ITING:	NOTES:	1. PANEI	BOARD IS 10KAIC RATED.		
VOLTAGE:	120/240	0 CIRCUIT BREAKER: 100			100	SURFACE: X]	2. PROVIDE 4 KEYS FOR LOCK.			
PHASE:	1	MAIN LU	G ONLY:			FLUSH:			3. PROVIDE TINNED COPPER BUSSING (ALL)			
WIRE:	3	SUB-FEED LUGS:		AIC RATING:			NG:					
	AMPS	AMPS	СВ	CKT		СКТ	СВ	AMPS	AMPS	CIRCUIT		
	Α	В	AMP				AMP	Α	В	DESCRIPTION		
IG	8.00		20/1	1		2	20 /	0.00		SURGE ARRESTOR		
LIGHTING		0.10	20/1	3		4	/ 2		0.00	SURGE ARRESTOR		
RECEPT. (1)	1.50		20/1	5		6	30 /	21.00		ELECTRIC UNIT HEATER NO.1		
ЭНТ		1.00	20/1	7		8	/ 2		21.00	ELECTRIC UNIT HEATER NO.1		
			20/1	9		10	20/1	0.01		PHASE LOSS RELAY POWER		
GHTING		1	20/1	11		12	20/1		7.50	TANK RECEPTACLES (1)		
	5		20/1	13		14	20/1	5.00		SECURITY PANEL/POWER SUPPLY		
AY (PLR)		0.1	15 /	15		16	30/1		10.00	CATHODIC PROTECTION PANEL NO.1		
AY (PLR)	0.1		/ 2	17		18	30/1	10.00		CATHODIC PROTECTION PANEL NO.2		
.1 AND MOTORIZIED DAMPERS		10	20/1	19		20	20/1			SPARE		
			20/1	21		22	20/1			SPARE		
			20/1	23		24	20/1			SPARE		
			20/1	25		26	20/1			SPARE		
			20/1	27		28	20/1			SPARE		
			20/1	29		30	20/1			SPARE		
SUB-TOTAL:	14.60	12.20				SUB-	TOTAL:	36.01	38.50			
						TOTA	L:	50.61	50.70			
	VOLTAGE: PHASE: WIRE: G LIGHTING RECEPT. (1) GHT GHTING AY (PLR) AY (PLR) A ND MOTORIZIED DAMPERS	VOLTAGE: 120/240 PHASE: 1 WIRE: 3 AMPS A G 8.00 LIGHTING RECEPT. (1) 1.50 GHT GHTING SHT SHY (PLR) AY (PLR) AY (PLR) AY (PLR) AND MOTORIZIED DAMPERS	VOLTAGE: 120/240 CIRCUIT PHASE: 1 MAIN LU WIRE: 3 SUB-FEE AMPS AMPS A B G 8.00 LIGHTING 0.10 RECEPT. (1) 1.50 GHT 1.00 GHTING 1 AY (PLR) 0.1 AY (PLR) 0.1 AND MOTORIZIED DAMPERS 10	VOLTAGE: 120/240 CIRCUIT BREAKE PHASE: 1 MAIN LUG ONLY: WIRE: 3 SUB-FEED LUGS: AMPS AMPS CB A B AMP I.IGHTING 0.10 20/1 RECEPT. (1) 1.50 20/1 SHT 1.00 20/1 GHTING 1 20/1 GHTING 5 20/1 AY (PLR) 0.1 15 AY (PLR) 0.1 20/1 AY (PLR) 0.1 20/1	VOLTAGE: 120/240 CIRCUIT BREAKER: PHASE: 1 MAIN LUG ONLY: WIRE: 3 SUB-FEED LUGS: AMPS AMPS CB CKT A B AMP CB CKT A B AMP CB CKT AMPS CB CKT AMP CB CU1 1 20/1 1 3 20/1 1 3 20/1 1 3 20/1 3 2 20/1 5 20/1 7 2 20/1 9 3 3 2 20/1 7 2 20/1 1 1 20/1 1 2 20/1 1 2 20/1 1 2 20/1 1 1 2 1 1 2 1 1 2 1 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 2	VOLTAGE: 120/240 CIRCUIT BREAKER: 100 PHASE: 1 MAIN LUG ONLY: WIRE: 3 SUB-FEED LUGS: AMPS AMPS CB CKT A B AMP GG 8.00 20/1 1 LIGHTING 0.10 20/1 3 RECEPT. (1) 1.50 20/1 5 SHT 1.00 20/1 7 GHTING 1 20/1 13 AY (PLR) 0.1 15 15 AY (PLR) 0.1 15 15 AY (PLR) 0.1 20/1 21 AND MOTORIZIED DAMPERS 10 20/1 23	VOLTAGE: 120/240 CIRCUIT BREAKER: 100 SURF. PHASE: 1 MAIN LUG ONLY: FLUSI WIRE: 3 SUB-FEED LUGS: FLUSI AMPS AMPS CB CKT A B AMP CB CKT A B AMP CB CKT A B AMP CKT CKT A CHARLES CM CKT CKT A CHARLES CM CM 4 CED CHARLES CM CKT 6 B CHARLES CM CM 6 B CHARLES CM 10 20/1 11 B CHARLES CM 10 20/1 11 B CHARLES CM 10 20/1 11 B	VOLTAGE: 120/240 CIRCUIT BREAKER: 100 SURFACE: X PHASE: 1 MAIN LUG ONLY: FLUSH: WIRE: 3 SUB-FEED LUGS: FLUSH: AMPS AMPS CB CKT AMP AB AMP CB CKT CAMP AB AMP CB CKT CB AMP 0.10 20/1 3 CKT CB AMP 0.10 20/1 3 CKT CB AMP AB AMP CB CKT CKT CB AMP CB CWT CWT CWT CWT 2 20/1 2 2 20 4 2 2 2 2 4 2 2 2 2 4 2 2 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 <td>VOLTAGE: 120/240 CIRCUIT BREAKER: 100 SURFACE: X PHASE: 1 MAIN LUG ONLY: FLUSH: AIC RATION AMPS WIRE: 3 SUB-FEED LUGS: CKT CKT CB AMPS AMPS AMPS CKT CKT CB AMPS AMPS<td>VOLTAGE: 120/240 CIRCUIT BREAKER: 100 SURFACE: X 2. PROVIDED PHASE: 1 MAIN LUG ONLY: FLUSH: 3. PROVIDED 4. PROVIDED</td></td>	VOLTAGE: 120/240 CIRCUIT BREAKER: 100 SURFACE: X PHASE: 1 MAIN LUG ONLY: FLUSH: AIC RATION AMPS WIRE: 3 SUB-FEED LUGS: CKT CKT CB AMPS AMPS AMPS CKT CKT CB AMPS AMPS <td>VOLTAGE: 120/240 CIRCUIT BREAKER: 100 SURFACE: X 2. PROVIDED PHASE: 1 MAIN LUG ONLY: FLUSH: 3. PROVIDED 4. PROVIDED</td>	VOLTAGE: 120/240 CIRCUIT BREAKER: 100 SURFACE: X 2. PROVIDED PHASE: 1 MAIN LUG ONLY: FLUSH: 3. PROVIDED 4. PROVIDED		



(1) PROVIDE 4-6MA GFI CIRCUIT BREAKER TO PROTECT CIRCUIT SHOWN.

ONE-LINE DIAGRAM



NOTES:

- 1. EQUIPMENT GROUNDING CONDUCTORS NOT SHOWN, BUT ARE REQUIRED.
- 2. NOT ALL SPARE INPUTS OR OUTPUTS ARE SHOWN, USING STANDARD 8 OR 16 POINT CARDS.

	LIGHTING FIXTURE SCHEDULE											
C - CONCRETE CB - CONCRETE BASE CH - CHAIN ES - EXPOSED STRUCTURE CH - CONCRETE BASE CH - CHAIN CH												
DES.	DESCRIPTION	LAMP DATA VOLT DEPTH LIGHTING FIXTURE				MTG.	MTG. SURF					
		NO. TYPE MFR.		MFR.	CAT. NO.		30111	NOIL				
Α	8' FIBERGLASS INDUSTRIAL	-	L.E.D.	MVOLT	-	LITHONIA	FEM4LED-4L-IMAFL-WLFEND	s	ES			
В	ENCLOSED VAPORTIGHT - WALL MOUNT	1	L.E.D. LAMP	120	-	CROUSE-HINDS	VXHBF22GP	W	ES	1		
С	ENCLOSED VAPORTIGHT — STANCHION MOUNT	1	L.E.D. LAMP	120	-	CROUSE-HINDS	CROUSE-HINDS VXHA42GP		RAIL	1,2		
EBU	12V EMERGENCY BATTERY UNIT	2	50 PAR36	120	-	LITHONIA	IND12100-H5012S-ULT	W	ES			
OA	CUTOFF WALL LIGHT WITH MOTION/LIGHT SENSOR	-	L.E.D.	MVOLT	-	LITHONIA	DSXW1LED-10C-530-40K-TFTM-MVOLT- PIR-DDBXD	w	С			
ОВ	OBSTRUCTION LIGHT WITH PHOTOCONTROL	_	L.E.D.	120		DIALIGHT	860-1R01-002		ES	3		
OB	OBSTRUCTION LIGHT WITH PHOTOCONTROL		L.L.D.	120		UNIMAR	18001-001	S	L'S	٦		

LIGHTING FIXTURE SCHEDULE NOTES:

- FIXTURE TO INCLUDE SYLVANIA ULTRA L.E.D. OMNI DIRECTIONAL, 2700K COLOR TEMPERATURE, 1600 LUMENS, 20 WATT, 25,000 HOUR RATED, CATALOG #LED20A21/DIM/0/827, NO APPROVED EQUAL.
- PROVIDE 1-1/4" ALUMINUM PIPE FOR SUPPORT FOR FIXTURE. ATTACH TO RAIL WITH STAINLESS STEEL HARDWARE AND SUPPORTS. FIXTURE TO BE MOUNTED 8 FEET ABOVE CATWALK.
- 3. MOUNT LIGHT TO (ABOVE) PHOTOCONTROL.



FAX: 262-827-9615



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DATE DESCRIP REVISIONS

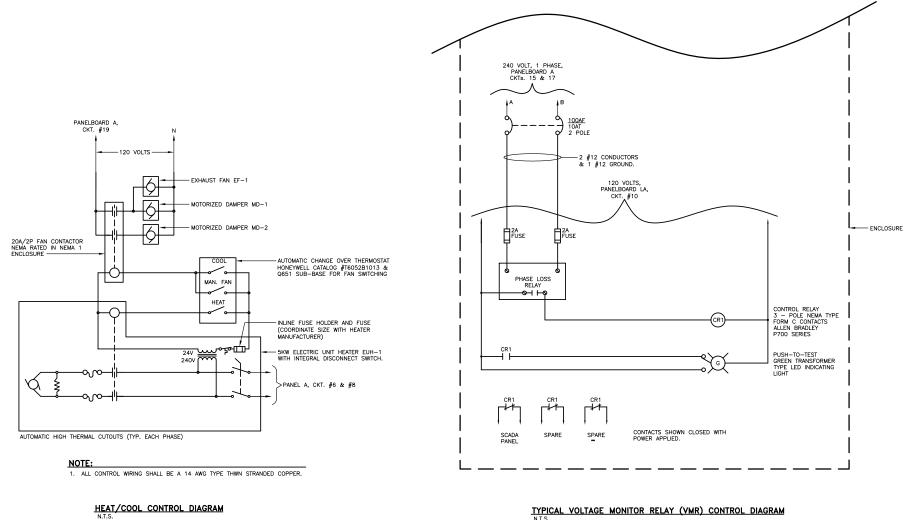
07–25–14 R.J.B. B.E.F.

ISSUE DATE
DESIGNED BY
DRAWN BY
Short Elliott Hendricks

HEET TITLE ELECTRICAL SCHEDULE AND ONE—LINE DIAGRA

SHEET





TYPICAL VOLTAGE MONITOR RELAY (VMR) CONTROL DIAGRAM N.T.S.

LAKEVIEW RESERVOIR REPLACEMENT PROJECT MADISON, WISCONSIN

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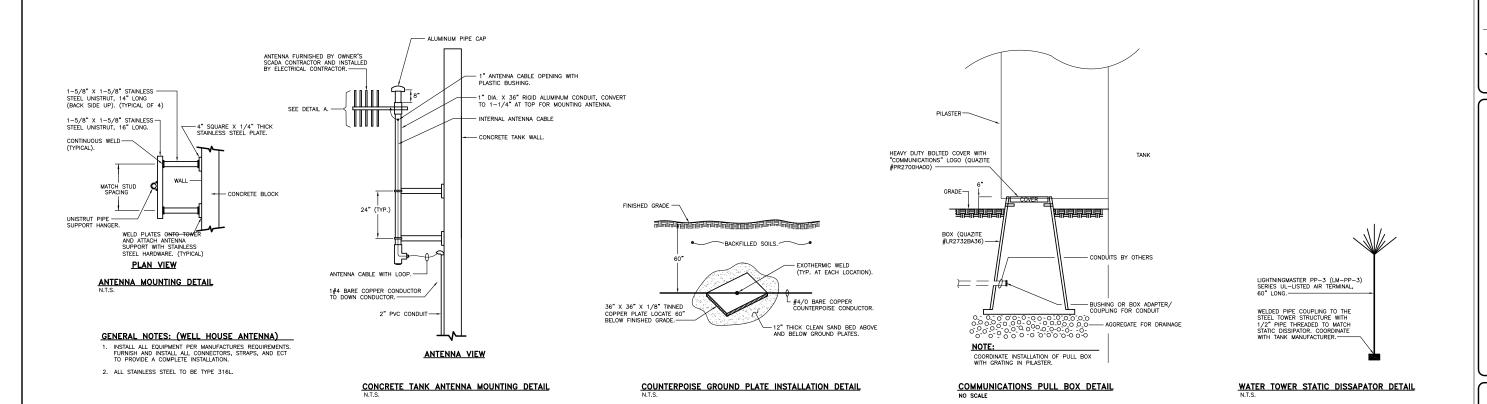
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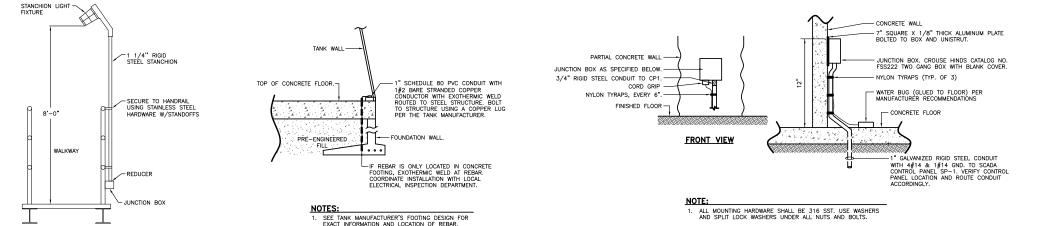
07–25–14 R.J.B. B.E.F. Inc. ® (SEH)

SHEET TITLE
ELECTRICAL CONTROL
DIAGRAMS

SHEET







TYPICAL CONCRETE ENCASED ELECTRODES STANCHION LIGHT FIXTURE DETAIL

TYPICAL MOISTURE SENSOR (WATER BUG) MOUNTING DETAIL



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DETAILS SHEET TITLE ELECTRICAL

SHEET